

19th-Century Photography in a Modern Chemistry Lab

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College courses focusing on the interface of chemistry and art are increasingly popular at many academic institutions where they are seen as an attractive way to engage non-science majors. However, there are very few courses that seek to engage science majors in the art world. An upper-level course was recently developed for chemistry and chemical engineering majors that introduced students to the chemistry of 19th-century photographic processes and conservation science. Working with Toshiaki Koseki, the photograph conservator at the Museum of Fine Arts, Houston, the students learned to identify 19th century processes. They then made cyanotypes, van Dyke brown prints, gum bichromate prints, and salted paper prints using negative/positive processes or cliché-verre. They were also introduced to toning methods, which included sepia, selenium, and gold toning. The students learned the importance of non-destructive analytical techniques and successfully used x-ray fluorescence spectroscopy (XRF) to identify toning or stabilizing materials on salted paper prints and van Dyke brown prints. Attenuated total reflectance Fourier transform infrared spectroscopy (ATR-FT-IR) was used to identify organic binders on a selection of study collection prints. Students also had an opportunity to look at the size and constituents of the image particles using scanning electron microscopy coupled with energy dispersive x-ray spectroscopy (SEM-EDX). The course was well received by the students, none of whom had ever had the opportunity to make photographic images or interact with the museum and conservation worlds. In addition they had never used many of the instruments before and so learned new analytical techniques as well. The authors have published the salted paper print exercise in the *Journal of Chemical Education* ("An investigation into the creation, stability and X-ray fluorescence analysis of early photographic processes: an upper-level undergraduate laboratory," Web published July 8, 2011). This poster presents a holistic overview of this advanced course to the conservation field and discusses the full scope of experiments covered.

Ancient Binders for Roman Concrete: The Accuracy of the Scientific Descriptions in Vitruvius' *De Architectura*

Keven A. Wohlgenuth, Conservation Intern, Preservation Department, Arizona State Museum

In the third quarter of the first century BC, the Roman architect Vitruvius wrote his famous treatise on architecture, *De Architectura*. This exhaustive description of Roman architectural techniques has influenced architects from Vitruvius' day to the present and his architectural precepts defined the construction of Rome. Vitruvius, however, was not only an architect and author but indeed a scientist, dedicating space in his treatise to the scientific explanation of many of the materials he recommended for construction. These explanations covered everything from physical and chemical descriptions of different types of stone and timber to scientific observations of the Romans' renowned hydraulic concrete. This study demonstrates that Vitruvius' scientific descriptions were indeed accurate and that he was able to make not only physical descriptions but also extrapolate chemical and thermodynamic observations well before the development of the modern technology that we rely on to understand these scientific properties. In order to extract Vitruvius' meaning, I compare Vitruvius' text with recent, published technical studies and descriptions of the physical and chemical properties of ancient Roman concrete and I illustrate what properties, known to us now after technical analyses, were already explained by Vitruvius. This is important because it can assist scholars and conservators in understanding the diffusion of the use of particular construction materials within the early Roman Empire.

The language that Vitruvius used was based on a first century BC understanding of the physical world and as such, does not conform to modern scientific descriptions of physical properties. Therefore, it is necessary not simply to translate, but to interpret Vitruvius' observations of the physical and chemical properties of the building materials as he understood them. I focus on Book 2, in particular chapters 4, 5, and 6, which are those dealing with sand, lime, and pozzolana ash, respectively, as binders for Roman concrete. These chapters are ideal for this case study because they demonstrate the extent of Vitruvius' knowledge of the scientific properties of Roman concrete which has survived exceptionally well and has been the subject of several recent technical, scientific examinations.

Vitruvius seemed to have a very intuitive scientific mind and with *De Architectura* he established scientific bases for the architectural materials used in ancient Rome. His insight described the construction practices of some of the most revered and enduring architectural monuments in the ancient world. Understanding his knowledge and his meaning will allow contemporary scholars to recognize the breadth of scientific awareness in the ancient world and allow conservators to better understand the properties of the materials that they endeavor to preserve.

Applications of metigoMAP Software: from Large Scale Mapping to Micro-Scale Measurements

Julia Burdajewicz, Post-graduate Intern, Painting Conservation, National Gallery of Art

Since 2001, a German company, Fokus, has been offering metigoMAP as the first computer graphic program created specifically for art conservators. It was created as an alternative to advanced graphic software available on the market such as CAD and GIS programs that are being harnessed for specific aims of graphic conservation documentation. MetigoMAP enables two-dimensional digital mapping of various phenomena and provides convenient tools for creating, managing, laying out and publishing documentation projects. MetigoMAP debuted as software for documenting large-scale projects and objects—such as architecture, wall paintings, and mosaic floors. The author of this abstract has been testing metigoMAP for three years now, trying to find and to assess other possible applications of this software in the field of conservation and restoration of art.

One of the very important features of metigoMAP is the possibility of making precise measurements and quantity calculations. In the case of large-scale projects, such functions can help to evaluate scope, time, and cost of conservation. However, when applied to small objects or in micro-scale, it can provide very precise data that would be difficult, if not impossible, to acquire with the use of traditional methods. One of the examples of such micro-scale mapping carried out in search of information would be tracing and measuring various layers and components visible in cross-sections of samples taken from a work of art. MetigoMAP provides tools that would allow the user to easily and quickly get quantitative information about the structure of a sample, including thickness of the layers, sizes of particles of the components, etc. Another use could be for tracing and analyzing dimensional features of incisions, punch-work marks or other distinctive features of an artwork, useful for a comparative study in search of an authorship or an origin.

This poster will present and discuss these and other possible applications of metigoMAP.

Beyond Book Repair: Expanding the Role of Conservation at the Yale University Library

Christine McCarthy, Chief Conservator, Preservation Department, Special Collections, Yale University Library, Yale University

Academic research libraries continue to respond to rapid and expansive changes brought about by advances in computing and information technologies. Much has been written about these revolutionary changes and the ways in which libraries must reinvent or retool services and staffing models to continue to meet user expectations and access needs. These trends and changes influence the ways in which traditional analog collections are viewed. Again, much has been discussed and published about

the interplay of analog and digital collections as well as the tensions sometimes created between the mandates to preserve collections and to digitize collections. In the midst of this ongoing transformation or revolution in research libraries, Yale University Library's Conservation Services took advantage of a renewed campus focus on materials culture to market its expertise more directly in the service of learning and teaching.

The typical treatments carried out by library conservators on rare materials were and remain very familiar to our librarians and collection curators. What is less clearly understood is the full breadth of the knowledge that supports those treatments, and the possibilities for leveraging that knowledge in the use of the collections for teaching. Through a series of outreach projects and collaborations with curators, faculty, and other conservators on campus, Yale University Library's Conservation Services, using its expertise in the areas of book history, materials and techniques, and scientific testing, has reintroduced itself to the campus and community as a partner in promoting teaching and enhancing learning through the study of objects, in addition to preserving collections for future generations of students and scholars.

Characterization of Traditional Japanese Colorants in Woodblock Printing using Multispectral Imaging: A Case Study

Gwenanne Edwards, Paper Conservation Fellow, Conservation Division, Library of Congress; Cynthia Karnes; and Lynn Brostoff

As many traditional Japanese colorants are dramatically altered by moisture, solvents, alkalinity, and light, a method is proposed to characterize their use in ukiyo-e prints. Characterization of these colorants may guide conservators making decisions for the exhibition, storage, and treatment of Japanese prints. Distinguishing colorants may also aid in the identification of the artist or time period in which the print was created. An 18th-century pillar print by Torii Kiyonaga is featured as a case study for the characterization of traditional Japanese colorants through imaging comparison of their spectral responses. The spectral responses of known samples are compared to those of the colorants in the Kiyonaga print in several imaging modes, including visible, infrared, false color infrared, ultraviolet reflectance, false color ultraviolet, and ultraviolet fluorescence. As possible, colorants are also imaged with a digital camera and appropriate filtration, a system more readily available to practicing conservators, to duplicate the results of multispectral imaging. Several colorants are characterized by comparison of the spectral responses. X-ray fluorescence and Raman spectroscopy are used to confirm the accuracy of preliminary colorant identifications. The influences of distinguishing the colorants on specific treatment decisions are described. In addition, the spectral responses of the blackened red lead in the print are compared before and after selective reversion treatment.

Community Conservation in the Andes: Possibilities and Learning

Boris Marquez, Manocomunidad Municipal Rio Yanamayo, Peru (LACS)

We believe that the foundation of conservation is inclusion. Many times in our region, we can relate it directly to the economic benefits that communities will experience, and more rarely, a long-term benefit may also occur. We suggest that there is not only a mandate for inclusion, but we also look back to the immediate historical memory. We look to the knowledge about the materials that have contributed to the technological evolution of construction, such as traditional architectural technologies based on pre-Hispanic techniques.

The cultural landscape of the Yanamayo River region of Peru is influenced by monumental archaeological structures as well as colonial and republican structures. When considered within the context of extent traditional Andean architecture, the interrelatedness is obvious, forming an approach to interpretation. The ancient technical knowledge of how to use space, materials, and plant fibers creates a useful amalgam for direct conservation intervention. Coupling this knowledge with our empirical understanding of the environmental impact on wood, mud, and textile fibers, provides an interesting means of recovery enabling the adoption of effective, directly applied intervention for Andean monuments.

The task of preserving the Yanamayo trail and hanging bridge brought to light certain questions. Would the project result in not only an increase in accessibility and tourism but also, would it be possible to develop conservation in the Andes? Despite social problems, is it possible to convince communities of the necessity to preserve cultural patrimony?

The approach to restoring and maintaining the historic bridge was developed with the participation of the people of Qesua Chaka (Cuzco). Through community participation in 2006, it was possible to develop the necessary technology to restore the bridge bindings using maguey. Maguey is a plant fiber that, through heating and cooling cycles, loses surface cohesion, requiring the people of the Yanamayo River region to develop ingenious methods for imparting durability to the bindings. The people of this region have also been developing intervention methods for the protection of the rock bridge supports and the pathways. For this reason the project is now on the list developed by the Peruvian State for inclusion as part of the Inca Trail on the UNESCO World Heritage List.

A Comparison of Microfading Test System Configurations at The Menil Collection

Maria Greene; Dr. Anikó Bezur, Andrew W. Mellon Research Scientist for The Museum of Fine Arts, Houston and The Menil Collection, The Museum of Fine Arts, Houston; and Jan Burandt

The Oriel Fading Test System (Newport) is a multi-component instrument designed for the in-situ, accelerated assessment of the lightfastness of colorants. User-based modifications of the light-delivery components of the system have included the use of achromatic lenses in focusing beam probes and the use of fiber optic reflectance probes. Compact xenon-arc light sources, operated without a light intensity control box, have also been explored in order to increase portability. The proliferation of “customized” Oriel Fading Test Systems prompted Druzik and Pesme to explore variability in the classification of light sensitive materials with respect to Blue Wool Standards (BWS) using combinations of different light sources and light delivery methods. Various designs offered comparable results for fugitive and relatively stable colorants.

In 2010 the Menil Collection acquired an Oriel Fading Test System, an additional compact xenon-arc illumination source (Apex), and fiber optic reflectance probes with 100 and 200 μm fiber diameters. Inspired by Druzik and Pesme’s work, an inhouse comparison of system configurations was conducted to explore variations in colorant classification with respect to BWS and to assess the reproducibility of experimental setups in a museum environment. Testing of BWS one through three and seven Winsor & Newton gouache color paint-outs on paper was completed using eight system configurations, which varied in spectral power distribution, luminous flux, illuminated spot area (illuminance range: 3–5.5 million lux), and sampling geometry ($0^\circ/0^\circ$ and $0^\circ/45^\circ$ with respect to surface normal). Light-induced color change was also measured using four system configurations on nine colors on a lithographic print by artist Michael Heizer.

With only a few exceptions, the classification of samples relative to the color change rate of BWS was consistent using all microfading system configurations tested. However, delta E values versus exposure dose graphs suggest deviations from the reciprocity principle, also observed by Hoyo-Meléndez and Mecklenburg. This highlights the need for further testing at lower exposure doses. Usability and reproducibility issues also arose during testing. While the fiber optic reflectance probes allowed faster setup, it was more difficult to test items with surface texture, including BWS, due to the proximity of probe tips to sample surface. The $0^\circ/0^\circ$ geometry of the probes also posed problems during the testing of glossy surfaces since spectrometer acquisition parameters are optimized using a diffuse reflectance standard. The relatively large spot diameter produced by the focusing beam probe, on the other hand, made it challenging to test fine lines without including information from adjacent areas.

Connect or Disconnect: A “Musselled” Moore Replica Becomes a Conservation Dilemma

Nancy Binnie, Senior Conservation Scientist, Treatment and Collections, Fine Arts, and Furniture Department, Canadian Conservation Institute, Ontario

Infestation Piece (Musselled Moore) created by artist Simon Starling was shown as part of a solo exhibition at The Power Plant Contemporary Art Gallery in Toronto from March to May 2008. The cast iron, zebra mussel-covered sculpture is a replica of Henry Moore’s *Warrior with a Shield*, a 1954 bronze in the collection of the Art Gallery of Ontario. Prior to exhibition, the sculpture was submerged in the fresh water of Toronto Harbour, Lake Ontario, in order to allow the surface to corrode and become colonized by algae and other freshwater biofouling organisms such as zebra mussels. Upon retrieval from the lake, the sculpture was air-dried to allow desiccation of the adhering (desirable) biofouling. Conservators identified two main risks to the Power Plant Gallery visitors and facilities prior to the opening of the exhibition—emission of a disagreeable odor from the desiccated mussels and algae and the attraction of insect pests which might pose a hazard to the museum’s general collection. Other long-term issues related to stability of the corroded steel surface, retention of the shells, and appearance of the shells was brought to the artist’s attention. Prior to exhibition, consolidants were applied under direction of the artist to encourage the retention of the mussel shells on the surface. During exhibition the sculpture continued to shed both shells and corrosion dust within the display hall, while a mildly disagreeable odor was also noted due to the rotted biomass retained in the thousands of mollusk shells on the sculpture surface. Upon the exhibition’s closing, the sculpture was transferred to the Art Gallery of Ontario and placed on display until it was identified as the source of a persistent pest infestation.

This paper will discuss the “connect” and “disconnect” dilemmas resulting from a modern contemporary art piece during its creation and display for a sculpture where it has been the artist’s intent to retain all mussel shells on the surface. While conservators were consulted prior to exhibition for advice on potential odor and stabilization treatments to improve the longevity of the sculpture as displayed when first exhibited, they later had to implement a conservation treatment to re-adhere mussel shells, stabilize rust, and remediate pest infestations. The sculpture has always been displayed in an open air gallery and not a sealed display case, and air circulation and architectural features of the building have allowed the attracted pests to spread within the building. While a clear “connect” has been possible with the artist to improve the longevity of the sculpture, an unfortunate “disconnect” exists as the sculpture is the source of an inherent risk to the general museum collection.

Conservation Documentation Practices in Academic Research Libraries: Documentation at Risk?

Laura McCann

In the spring of 2011, a survey was distributed to conservation professionals working in academic research libraries in order to gather data about conservation documentation practices. The data collected indicate that the vast majority of the respondents are in compliance with the minimal accepted standard stated in the AIC *Guidelines for Practice*. However, the majority of the respondents were not in compliance with the recommended practice for the preservation of conservation documentation as described in the commentary to the AIC *Guidelines for Practice*. In particular the data suggest that conservation documentation is rarely deposited in the institutional archives of academic research libraries for permanent retention.

The American Research Libraries (ARL) preservation statistics were used to identify academic research libraries with established preservation and conservation programs. A list of names and email addresses of 69 conservation professionals working in 42 academic ARL member libraries was assembled using library websites and reference services. The survey aimed to record basic institutional and demographic data, as well as information about individual conservation documentation practices.

After testing, the survey was distributed directly via email using web-based survey software. A total of 37 respondents completed the entire survey, and 30 of those agreed to participate in a follow-up questionnaire. Survey and questionnaire results confirm that the respondents produce and retain conservation documentation in both analog and electronic formats. It was reported that conservation documentation was produced consistently for special collections materials.

The poster will present the data collected, the corresponding AIC *Guidelines for Practice*, and the results of data analysis. In order to promote the preservation of conservation documentation and improve compliance with AIC *Guidelines for Practice*, a workflow describing the process of depositing conservation documentation into academic library institutional archives will be provided.

Conservation in the Spotlight: Maintaining Public Access to the Staffordshire Hoard While Delivering a Conservation Program

Ellen Promise, Winterthur/University of Delaware Program in Conservation, Class of 2012; and Deborah Cane, Dip. Cons., MA, ACR, Staffordshire Hoard Conservation Manager, Birmingham Museum & Art Gallery, Birmingham, UK

In 2009, one of the most important caches of Anglo-Saxon artifacts ever unearthed was discovered by a metal detector enthusiast in a farmer's field. The Staffordshire Hoard, as it is now known, comprises at least 1,700 fragments and objects of gold, silver and precious stones. The objects are most mostly martial in nature, including sword pommels, hilt collars, and possible helmet components. Although most have been damaged and distorted, seemingly torn from their original mounts, they exhibit the finest artistry and craftsmanship. Further information about these artifacts is gradually emerging through a process of conservation, analysis, and research.

Conservation is carried out by a core team of three conservators, who undertake the principle documentation, treatment, and storage of the objects, prioritizing those that have been slated for future exhibitions and loans. Collaboration has been central to the continued success of this project. This includes work with other conservators at institutions both locally and abroad. Conservation scientists, researchers, jewelry makers, and professionals from a variety of related fields have also contributed their time and expertise. The project is also committed to education, taking on a number of student placements for durations from two weeks to two months.

Due to its magnitude and historic significance, the Staffordshire Hoard has drawn continual and enthusiastic public interest. This began as soon as the find was announced. In a deviation from the typical protocol, the objects were put on display at the Birmingham Museum and Art Galleries prior to their acquisition. Members of the public were allowed to see their cultural heritage immediately, and they played a critical role in raising the 3.3 million pounds necessary for the Birmingham Museum and the Stoke-on-Trent Potteries Museum to jointly acquire the artifacts. Since this time, continued efforts have been made to keep the public updated on this project, with monthly tours, filmed and written blogs, and ample news coverage.

This symbiotic relationship with the public has yielded noticeable results for the Hoard project. Through strategic partnerships with organizations such as the National Geographic Society, the Staffordshire Hoard has elevated its profile. Visitorship to exhibitions of select conserved objects has been outstanding and individuals, trusts, businesses, and other sectors have been willing to support the project financially. Conservation work has been funded for a guaranteed two years. Needed equipment, such as a suite of microscopes, has been acquired.

This poster will outline the development of the conservation project and discuss how continually updating the public

has reinforced the idea that the hoard artifacts are shared cultural heritage. With this sense of ownership comes a shared responsibility for their preservation, which includes fundraising for conservation and a dedicated exhibition space.

Conservation of Archaeological Sites in Atacama Desert: The Geoglyphs of Chug Chug

Francisca Gili Hanisch, Conservator, Specialty Archaeology, Archaeological Laboratory of the National Centre of Conservation and Restoration (CNCR)

Geoglyphs are a cultural manifestation that is present in only a few parts of the world including the United States, Peru, England, and Chile. In Chile, there is a wide concentration of them in the northern regions of Atacama and Tarapaca. A complex system of interchange was developed in this zone in the pre-Hispanic period using caravans that connected coastal, desert, and highland regions. Different connection roads were established between important zones and one of the most symbolic icons associated with these trails are geoglyphs. Chug Chug is a geoglyph site related to a caravan road that connected two important oases in the Atacama Desert--Quillagua and Calama. Four hills contain numerous icons representing different symbolic references for caravans traveling in these arid zones in ancient times.

Initiatives carried out in the 1970s attempted to spread the word of this heritage zone and promote it as a tourist attraction. A small visitor center was built and administrated by the town hall of María Elena, a small town known for nitre mining. These days, this center is an uncontrolled touristic spot because of its distance from the town and lack of financial sources to sustain visits and control. The Chilean National Fund for Scientific and Technological Development known as Fondecyt funded a research project in 2009 entitled "Mobility Strategies in Pre-Inca trails connecting the central zone of Loa River and coast of the Atacama region (number 1090762)." In the frame of this project a conservation assessment was carried out. This assessment developed a process to characterize the principal agents and effects of alteration that this site presents, with the aim of generating an integral conservation plan for preserving Chug Chug for future generations. This poster will present this case to share both the method and the recovered information.

Creative Endeavors and Expressive Ideas: Emerging Conservators Engaging through Outreach and Public Scholarship

Submitted by the Emerging Conservation Professionals Network

Emerging conservators must not only master the science and craft of their field, but also learn to communicate their professional experiences in ways that promote and advocate conservation. The Emerging Conservation Professionals Network (ECPN) will highlight such creative endeavors and ideas by showcasing success stories in outreach and new media that are being applied by emerging conservators. This poster will illustrate examples of outreach projects that use traditional and new media, how those projects communicate the importance of conservation effectively with different audiences, and how the projects seek to make audiences feel more involved in the conservation of their cultural heritage. The presentation of this material will be designed to promote new ideas for engaging with the public in positive and creative ways. It will also provide successful examples for conservation professionals seeking innovative approaches to connecting with new audiences and engaging them with conservation related projects. ECPN solicited and compiled these case studies from submissions by our members, participants in our mentor program, and through our graduate program liaisons.

One case study is the project to design a conservation-themed exhibition *Conserving Antiquity*, at the Kelsey Museum of Archaeology at the University of Michigan, which is scheduled to open this coming fall. In preparation for this exhibit recent Winterthur/University of Delaware graduate and Samuel H. Kress Conservation Fellow Carrie Roberts is working with conservators Suzanne Davis and Claudia Chemello to develop innovative ways to engage visitors, including podcasts of “conservation stories” recorded by established conservators. Other case studies will feature approaches to raising public awareness, such as through conservation treatments that are performed in the public eye. The importance of social media to emerging conservators will be highlighted as a tool for public outreach, career networking, marketing, and engaging with allied professionals.

The poster will provide links to an additional online section designed to advise readers on creative and innovative approaches to outreach, including how to write a blog post, how to write a press release for a conservation project, and how to organize an informal professional gathering by using social media. This “how-to” section will be featured in companion posts on Conservators Converse, the AIC blog (www.conservators-converse.org).

Crossing the Boundaries Between Conservation Disciplines in the Treatment of Asian Thangkas

Camille Myers Breeze, Director, Museum Textile Services; and Kate Smith, Conservator in Private Practice

Asian thangkas are devotional paintings originally framed by layers of textiles and frequently rolled on their own wooden dowels for storage and transport. Ceremonial use and handling take a toll on each of the thangka's components, as do subsequent generations of conservation interventions. Over time, many thangka paintings are separated from their deteriorating fabric mounts and are never again interpreted as complete, three-dimensional artifacts. Stabilization of thangka is often undertaken either by thangka conservation specialists or by teams of conservators whose specialties lie in paintings or textiles conservation, but not both. The latter case can result in treatments in which either the painting or the textiles suffer for want of understanding or guidance in appropriate, low-intervention stabilization options. When Museum Textile Services (MTS) began the conservation of a group of 18 Tibetan thangkas belonging to the Mead Art Museum in 2009, we set out to cross the boundaries between textile and paintings conservation. Kate Smith, paintings conservator in private practice, was brought on to the project as a consultant. Kate was essential in the development of a comprehensive treatment approach for the collection and in providing treatment assistance and training for the MTS staff. A thorough reading of existing literature on thangka conservation identified scholars in the field, several of whom were contacted during the project. The sheer size of the Mead Art Museum's collection was a challenge but the fragility of many of the textiles and paintings, as well as the presence of many sacred inscriptions and hand prints on the back of the paintings, were of primary concern. By the time the two-year project was complete, a series of treatment procedures had been created that address common challenges including when and how to clean and stabilize extremely fragile silk, replace a missing thangka mount with appropriate modern fabric; remove and remount a painting; and how and when to consolidate, line, and inpaint a thangka painting. We concluded that many of the skills required to conserve thangka paintings and their fabric mounts overlap and inform each other. With a better understanding across the conservation disciplines, composite artifacts such as Asian thangkas will receive more informed, appropriate, and reversible treatments. These 18 thangkas were exhibited in two groups over the course of the 2011–2012 academic year in *Picturing Enlightenment: Thangka in the Mead Art Museum at Amherst College*.

The Cycle is Broken: From Smuggling to Public Policies for the Conservation of Cultural Heritage

Ana Carolina Delgado Vieira, Museum of Archaeology and Ethnology—University of São Paulo (MAE/USP) (LACS)

In 2005, the Brazilian Court confiscated a significant collection of historically and culturally valuable archaeological and ethnographic objects from the Cultural Banco Santos Institute. Suspicion of illegal activity led the government to transfer the collection to the University of São Paulo and other public institutions for safekeeping. The seized objects are of great cultural value and, therefore, must be subject to ongoing maintenance and care with government access to promote research and the dissemination of information.

This emergency safeguard has helped prevent the continuation of an illicit market. The defense of this unique cultural heritage represented a real challenge in a scenario of scarce public resources and limited possibilities. Protection efforts are ongoing and urgent; examination, documentation, and communication of these new acquisitions help break the cycle of illegal trade. They are now more protected from international trafficking because policies have been developed for the conservation of collections. Adding these objects to a museum collection makes them available for scientific research, which is the main mission of these institutions today.

The collection, currently housed under judicial custody at the Archaeology and Ethnology Museum (University of São Paulo), is composed of about 3,800 objects. This large collection can be divided into four major segments: Brazilian archaeology, Mediterranean and Middle Eastern archaeology, Andean archaeology and ethnology, and Brazilian ethnology. Each area requires specific safeguards. To accomplish this great task force, all the technical and institutional efforts were mobilized to ensure that an operational chain of actions was initiated in anticipation of these objects entering the collection. From that moment, a series of curatorial work was done to organize, document, package, and make this collection available for both research activities and for the dissemination of information.

The value of cultural and scientific collection of the defunct Cultural Banco Santos Institute is unquestionable. Its custody, even in temporary state, represents new opportunities for the university to record information about material culture and provide an important addition to existing university museum collections. University researchers have already begun their investigation of the collection. The preservation in a university space enables a rich debate and an important contribution to research and scientific studies by motivating students and teachers.

This new sphere of action is only possible now that the collection has arrived at the University of São Paulo. It breaks the cycle of trafficking in cultural heritage and opens up a new and unprecedented perspective to this collection.

Designed by Sekka, printed by Unsôdô: A Study of Pigments in Japanese Woodblock Prints from the Dawn of the 20th Century

Nicole Garcia; Dr. Anikó Bezur, Andrew W. Mellon Research Scientist for The Museum of Fine Arts, Houston and The Menil Collection, The Museum of Fine Arts, Houston; and Tina Tan

Kamisaka Sekka (1866–1942), foremost among Japanese “designers” of the early 20th century, was a prolific creator working in numerous media, including painting, lacquer, textile, ceramic, and printed books. Venerated as a legitimate successor of the Rimpa tradition later in his career, Sekka demonstrated the stylistic transition from his early Shij school training of lyrical realism to the decorative Rimpa style in a series of polychrome woodblock prints published monthly by Unsôdô (Kyoto) from February of 1899 to June of 1900. A total of 54 prints were later compiled and bound into three volumes titled *Chigusa* (A Thousand Grasses), likely between 1900 and 1905.

A complete three-volume set of *Chigusa* entered the collection of Museum of Fine Arts, Houston (MFAH) in the fall of 2010. Metallic colors are used in many prints to achieve lavish visual effects. While the prints are in good overall condition, some discoloration of paper and metallic surfaces has occurred on areas of the prints that are in direct contact with areas of metallic pigments on facing pages. Although publications on techniques and materials related to traditional Japanese woodblock prints (*ukiyo-e*) are available to the English speaking audience, technical studies on post-Edo Era (1603–1868) woodblock prints are scarce.

This poster presents the early results of the examination and analysis of pigments used in the bound and unbound versions of the woodblock prints in the *Chigusa* series from the collection of the MFAH. Pigments were analyzed using the non-destructive techniques of optical microscopy, digital infrared reflectography, and x-ray fluorescence spectroscopy (XRF). Visible light microscopy was essential to establishing the application sequence of various colors, thereby aiding the interpretation of elemental analysis results obtained using XRF. Elemental analysis revealed the use of chrome yellow and unusual metallic powders in addition to inorganic pigments identified in published studies of late 19th-century *ukiyo-e* prints. Differences were noted in the choice of pigments used in executing bound and unbound versions of the same prints.

Desiré Charnay's Panoramic View of Mexico City

Diana Lorena Díaz-Cañas, and María Estíbaliz Guzmán Solano, Adjunct Professors, National School for Conservation, Mexico (ENCRyM) (LACS)

Desiré Charnay, a well-known travel photographer and archaeologist, left an important legacy in Mexico—photographic documentation of different cities and archaeological sites from his first trip to Mexico between 1857 and 1861. His work includes many examples of historic photographic techniques such as salted paper prints and albumen prints. One of his most beautiful and impressive works is a panoramic view of downtown Mexico City, circa 1858. This highly detailed image is composed of five photographs contact-printed from five collodion glass plate negatives. The photograph was a gift to Manuel Orozco y Berra, one of Charnay's closest friends in Mexico.

In 2009, the post-graduate course in the conservation of photographs at the National School for Conservation in Mexico City began studying this photograph. Extensive research was carried out over the course of three years. Teachers and students have been collaborating with scientists, historians, art historians, photographers, curators, and conservators from different countries in order to identify the photographic technique and to propose and execute a suitable course of treatment for this masterpiece.

Development of a Pigmented Wax/Resin Fill Formulation for the Conservation of Paintings

Christine McIntyre, Art Conservation Program, Buffalo State College; and James Hamm

Pigmented wax/resin is a useful material for creating textured fills in oil paintings, whether subtle canvas weave patterns or large impasto shapes. Paintings and objects conservators have used various wax mixtures for years, but the lack of widespread use in conservation suggests dissatisfaction with the material or its handling characteristics. The most useful pigmented wax/resin mixtures balance malleability when warmed with a paint-like hardness when at room temperature. Some conservators may be reluctant to use wax/resin fills because of concerns over excessive softness (making the fills prone to deformation) or solubility in inpainting solvents. The Buffalo State College Art Conservation Program utilizes a pigmented wax/resin fill formula that contains beeswax, microcrystalline wax, resin, and pigments. Employing a high ratio of pigments, along with the proper proportion of the two waxes and a resin, yields a relatively hard and less soluble fill that can be fabricated and applied with ease.

The resin component that gives more hardness and tack to the fill, Laropal K-80, is no longer manufactured. The goal of this study was to modify the fill formula by using a replacement resin, in the prospect of achieving equal or better results, while

more fully understanding the advantages and limitations of pigmented wax/resin fills in general. A questionnaire was emailed to conservators to gain insight into what wax fill materials and practices were being used elsewhere. In addition, a collection of aged pigmented wax fill samples, prepared 20 years ago by Frederick Wallace, was evaluated.

When new formulations were prepared and tested, each resin had different dissolution times and none of the mixtures were entirely homogenous. Working properties of each pigmented wax/resin mixture were evaluated by filling losses in a donated painting. Alternative waxes were considered and hardness tests were conducted using a handmade apparatus with weights and a micro-needle probe. In addition, application techniques and procedures that minimize clean up were explored. For longer-term study, a mock-up board with channels was constructed and filled with five pigmented wax/resin formulas, including the original. An identical board was made with additions of varnishes and inpainting media that tested compatibility. To test adhesion, cross-cut tests were performed on the original formula as well as a formula that used Laropal A-81. It was concluded that Laropal A-81 could replace Laropal K-80 in the original formula and achieve a similar, if not improved, pigmented wax/resin fill. The aim of this paper is to more fully inform conservators about wax/resin fills and to share the benefits of this particular formulation, which shows promising results.

Digital Infilling on Japanese Prints

Melody Chen, Independent Conservator

Among its vast holdings, the Museum of Fine Arts, Boston, is renowned for its collection of Japanese prints. Over the past several years, many of these prints were documented with high resolution digital photographs as part of the Japanese Print Access and Documentation Project (JPADP), a project aimed at increasing the accessibility of the Japanese print collection to a broad audience. These photographs were invaluable to the treatment of a Chobunsai Eishi pentptych, *The Hyogo Pleasure Boat and Others on the Sumida River Under Ryogoku Bridge*, of which there are two impressions in the collection. The impression that was in better condition was photographed for the JPADP, while the other impression required treatment to repair insect and handling damage. This Eishi pentptych was treated using methods that are typical for a Japanese print treatment, which included surface cleaning, hinge and backing removal, infilling, and inpainting.

For infilling many of the small losses, a traditional method was used. A Japanese paper with an appropriate thickness and texture was selected and then toned with watercolor to replicate the original support. However, because several of the larger losses were located in areas with complex design elements, the decision was made to insert digital reproductions to fill these areas instead of inpainting or toning by hand. Working closely with the Photography Department at the Museum of Fine Arts,

the digital copies of the JPADP-photographed Eishi pentaptych were printed on a variety of papers, including a Japanese paper of similar thickness and tone as the treated Eishi pentaptych. However, because the papers were not designed for digital printing, the resulting prints were fuzzy and unclear. Next, an Asian-style Hahnemuehle paper designed specifically for digital printing was used. This paper was manufactured to replicate the physical appearance (chain and laid lines, and surface texture) of traditional, handmade Japanese papers. Because of its digitally prepared coated surface, the resulting prints were much more clear and sharp in comparison to the above-mentioned prints on traditional Japanese papers. The digital reproductions were then color corrected and size-adjusted using Adobe Photoshop. After these adjustments, the digital reproductions matched both the texture and tone of the Eishi prints. After filling the complex losses with inserts made from the digital reproductions, the pentaptych appeared visually cohesive. The digital fills are detectable from the recto when closely inspected, and they are easily identified when viewed from the verso. The digital reproductions are not sensitive to moisture and they pass the Oddy test.

This treatment shows that with a high resolution digital photograph, a digitally-printed insert does not require a paper of matching tone or texture, as is necessary when creating a traditional fill. These paper characteristics can be reproduced using image-manipulation programs such as Adobe Photoshop and specially designed digital printing papers. As advances in printing papers and printing technology are made, the ease of using digital reproductions may advance this method as a more widespread and convenient technique in cases where traditional methods falter.

An Easy Protocol for the Determination of the Botanical Origin of Natural Resins from *Bursera* that Joins the Use of Infrared Spectroscopy and X-Ray Diffraction

Delia Paola Lucero Gomez, Carole Mathe, and Cathy Vieillescazes, Laboratory of Chemistry Applied to Restoration of Artistic and Archeological Patrimony, University of Avignon, France; Lauro Bucio, Physics Institute, UNAM, Mexico; and Irma Belio, Biomaterials laboratory, Autonomous Sinaloa University, Mexico

Natural products are known to be complex mixtures of organic molecules. These organic materials may be identified by different analytical methods. However, certain spectroscopic techniques are advantageous, as they do not require the destruction of the sample. *Bursera* species are the source of oleoresins that have been used in different fields and cultures. In the Pacific coast of Mexico, this botanic genre numbers more than 80 species. These resins are highly valuable because of their chemical composition. Oleanane-, ursane-, lupane- and hopane-like molecules have been documented to enter in good proportion in these materials. Their use in traditional medicine has been recorded as early as the 16th century.

Additionally, these resins have been often used in the artistic field as binders for paintings and in the composition of different kinds of varnishes. In the Mexican context, their use as adhesive materials in archeological Aztec pieces such as turquoise mosaics, ceremonial knives, and raw material for the decoration of figurines has been established, and recognized muralists such as Diego Rivera, Jose Clemente Orozco and David Alfaro Siqueiros included *Bursera* resins in the formulations of their paints.

In this context, non-destructive techniques such as XRD (X-ray diffraction) and IRTF (Inverse Fourier transformed Infrared) are invaluable for the professionals that are in charge of the conservation and the restoration of cultural objects, as it is generally difficult to identify such substances only by physical characteristics and olfactive observations. Moreover, processes of deterioration often make the interpretation of observations carried out on archaeological materials difficult. Such sample analysis presents a great interest for the scientist toward the understanding of the techniques employed in the fabrication of the piece.

Often analytical techniques are difficult to access for conservation professionals. Thus a simplified, fast approach for the botanical identification of these materials by means of FTIR and XRD is presented here, aiming to be useful as a first approach to these techniques for non-chemist professionals.

Educating To Preserve

Janet Díaz Navarro, Directora del Programa de Conservación Patrimonial y Servicios Bibliotecarios, Milenis Curbelo, Oficial de Programa de Conservación Patrimonial y Servicios Bibliotecarios, Antonio Núñez Jiménez Foundation of Nature and Humanity (FANJ), Cuba

Cultural heritage is part our memories and historic inheritance; therefore, we have the responsibility of preserving it for future generations. The deterioration of museum and archive collections constitutes a partial loss of history and the peoples' identity. This loss is incalculable in the social development of every community.

Among the causes that affect the conservation of this heritage is the lack of knowledge of the real value by the community and the people who work with it. This is why the first mission for the conservation community is to increase the awareness about these valuable objects, the place of cultural heritage in peoples' history, and the loss of cultural identity due to damage of this heritage.

To make this a reality, it is important to create an adequate strategy to encourage people to see museums as integral parts of the community and that it is important to care and preserve. It is essential to bring the community to understand that museums are not just entertainment; they are part of everyday life, and they can help us to understand present-day problems and occurrences since they recollect the history of which we are all a part. Museums help to preserve our knowledge and experiences from generation to generation, and that is why the conservator has to help people understand that everyone has a responsibility to preserve.

The Antonio Núñez Jiménez Foundation of Nature and Humanity (FANJ) has developed a program of activities in order to educate and prepare the institution's staff and the community in the conservation and preservation of their heritage. This way every citizen will consider this task as a necessity for his entertainment and well-being. This program was designed in order to reach different groups base on these demands. It includes talks, guided tours of the museum, films and documentary viewings, learning games and other activities.

We present our experience of how to use cultural heritage to support educational programs and raise awareness in children and youth about the great value in, and needs of, preserving collections. The collection "Amazon to the Caribbean by Canoe" is an example of how cultural materials help children and young people develop their intellectual capacity and at the same time it guarantees that the inheritance of our ancestors is passed to future generations.

Education and Public Outreach at the Heritage Resources Conservation Laboratory: A Case Study at California State University, Chico

Georgia Fox, Associate Professor, Department of Anthropology, California State University, Chico

Within the spirit of this year's theme of public outreach, this poster will explore the various outreach efforts, goals, and objectives of the Heritage Resources Conservation Laboratory (HRCL) in the Department of Anthropology at California State University, Chico. In view of the existing "curation crisis," the stabilization, care, and conservation of cultural heritage is especially critical as future employment opportunities may be directed toward addressing this current state of affairs. In this regard, the Heritage Resources Conservation Laboratory has been training students in archaeological and ethnographic conservation and collections care since the lab's inception in 2003. The lab serves as a teaching venue for the course "Conservation of Archaeological and Ethnographic Resources (ANTH 465)," as well as the setting for further training in related contract activity, including a recent project conducted for the National Oceanographic and Atmospheric Administration's Maritime Heritage Program. Other related efforts include collaborations with members of the Northern California tribal community, local high school students, and local museums. Public awareness of HRCL's efforts has also been disseminated in the press and media. Further public awareness of the importance of conservation has been integrated in museum exhibitions in the Valene L. Smith Museum of Anthropology on the Chico campus. In summary, this poster advocates for educational curricula to include courses in conservation and collections care in higher education and to encourage dialogue in this direction. Such exposure and training can only help better prepare students by fully grounding

them in the theoretical and methodological approaches to the care and preservation of cultural heritage, especially within art, anthropology, history, and archaeology departments nationwide. By providing educational opportunities for students, they can develop heightened awareness of the AIC and the conservation community, as well as the necessary knowledge, skills, and training, which can better prepare them for matriculating into graduate programs in conservation and toward employment in cultural heritage management. The Heritage Resources Conservation Laboratory is working toward these goals and instilling the importance of conservation for both present and future generations.

Evaluation of Ultraviolet Filtration by Glazing and Display Case Materials

Morgan Simms Adams, Graduate Student, Conservation Center, Institute of Fine Arts, New York University; Steven Weintraub, Founder, Art Preservation Services; and Hannelore Roemich, Conservation Center, Institute of Fine Arts, New York University

The UV-filtration properties of over 20 samples of currently available glazing and display case materials are evaluated and the results of two methods for measuring UV filtration are compared. Materials examined include samples of glass, acrylic, polycarbonate, and polystyrene sheets in various thicknesses; materials advertised as "UV-filtering" or "museum grade" are compared to similar materials not designated "UV-filtering." Additionally, seven "naturally aged" glazing samples are examined to study the impact of long-term exposure under museum conditions on UV-filtration properties. The two methods for the evaluation of UV filtration are with a UV-Visible spectrophotometer and with an Elsec 764 UV meter. In both cases, a tungsten-halogen source with an enhanced UV output was used as the light source. The spectrophotometer was used in transmission mode, where the unfiltered light source was normalized at 100% transmission. This provided information on wavelength-specific filtration properties of the tested materials. The Elsec 764 UV meter provided output as microwatts UV/lumen. The samples examined are rated as excellent, moderate, and poor UV filters; comparison of the different types of glazing and display case materials reveals that effective UV filtration is available in polycarbonate, acrylic, and glass sheets. Finally, the preliminary investigation of the naturally aged samples reveals that UV filtration is not significantly diminished by gallery light exposure for the evaluated samples.

The Female Conservator as Protagonist in Modern Mystery Novels: A Demographic and Psychographic Profile

Cassie E. Johnson, Student

This paper details the findings of a pilot study on female conservators as protagonists in modern mystery novels. Such a topic complements this conference's theme of "Advocacy and Outreach," including its proposed session on "Conservation and the media: press, literature (including journalists)." This paper is pertinent to outreach and advocacy for the profession in that 53% of self-defined avid readers read fiction; furthermore, mystery and suspense is the most popular fictional genre at 19% (*Publisher's Weekly*). Conservation is not an entirely well-known profession, so for many readers the conservators of these mystery novels may contribute to a first and lasting impression of the field.

A convenience sample of the following books was used: *Waking Raphael* by Leslie Forbes (1993), *Death and Restoration* by Iain Pears (1996), *False Images* (2000) by Catherine Dunbar, and *Angels of the Flood* by Joanna Lance (2004). Using grounded theory, this study established a tentative demographic and psychographic profile of female conservators in those works.

The findings have twofold significance: They provide a provisional personality profile of female conservators as portrayed in popular fiction; in essence, the findings begin to define the fictional persona—accurate or not—of our profession. Additionally, the author ultimately will use the findings to develop a coding sheet to expand this profile to future studies with a larger sampling.

From Communication to Conservation: The Use of Photography as an Assessment Method in the National Museums of Chile

Josefina López, CONSERVARTS (private practice)

In 2011, the Department of Communications at the Directorate of Libraries, Archives, and Museums of Chile (DIBAM) commissioned a project for the creation of a comprehensive image bank of their institutions. The objective was to document the work they do, and the services they provide, highlighting their positive public roles. The photographs would be used for marketing and development purposes, both on the internet and in printed materials. The project was assigned to CONSERVARTS and undertaken by Josefina López, conservator and photographer, and assistant Constanza García. The first stage of the project addressed the DIBAM museums in and around Santiago, including the Museo Nacional de Bellas Artes, the Museo Histórico Nacional, the Archivo Nacional, the Biblioteca Nacional, the Biblioteca de Santiago, the Museo de Artes Decorativas, the Museo Histórico Dominicano, the Museo Benjamín Vicuña Mackenna, and the Museo de la Educación Gabriela Mistral.

Although the main goal of this assignment was to promote the museums, it was also an opportunity to perform a thorough survey of the institutions' facilities and work practices. The process of photographing the institutions allowed observations to be recorded from various points of view: as a visitor, as an artist, and as a conservator. This process of creating a photography-based survey was the foundation for simple but important recommendations for improvements.

Each survey began with a preliminary museum visit, involving test shoots and staff interviews. Visitor behavior and the condition of the facilities were observed. Minor modifications that improved the appearance of public spaces were made. Then the full photographic survey was performed. To augment the photography component of the project, reports were also written in order to summarize the data collected, and also to support the images. The reports include suggested improvements, with particular regard to the conservation labs, storage areas, exhibition practices, and visitor services. Throughout the process it was easy to identify common problems with exhibition installation, interpretation, and visitor services. Issues with internal operations and personnel were more difficult to identify, often only brought to light through staff interviews.

In the interest of providing constructive, nonjudgmental feedback, a general trend was observed. It is often difficult, especially with constricting budgets, for staff members who have worked at an institution for long periods of time to identify problems and develop creative solutions. Herein lies the value of involving professionals from outside the institution. Similar to arranging a perfect photo shoot, simple improvements can improve an institution, making for a more positive visitor and work experience. Keeping in mind that small changes make big differences, our museums will continue to improve, remaining alive and attractive, as everyone wants them to be.

The Historic Museum of La Cruz, Chile: Significance and Challenges

Claudia Fabiola Farias Abarca, Head Curator, Historic Museum of La Cruz, Chile

The Historic Museum of La Cruz, Chile, located in La Cruz County, deep in the Aconcagua river valley of Quillota, was opened in 2002. This area's indigenous people were first invaded by the Incas of Cuzco in the 14th century, and then 200 years later, by the Spaniards. The need to protect and preserve the cultural legacy of the Quillota area led to the development of the Historic Museum of La Cruz. The collecting activities of the museum are governed by the rules set forth by the National Monuments and Museums Administration, and in so doing; the museum has rescued archaeological materials from several sites in La Cruz Valley. Included in its collections are "lítico" objects, bio-anthropologic and ceramic pieces dated to 150 BCE.

Initial studies of some of the ceramics found in this region

resulted in challenges to previously held theories about the migration of the Incas into Chile. The Incas not only continued south but they also established a community in the valley and nearby coastal areas at La Cruz. When the Incas expanded their territory south, their culture melded with the indigenous people resulting in a unique style of pottery.

The mission of the Historic Museum of La Cruz is to illustrate the presence of indigenous cultures living in this area using 19th- and 20th-century archival materials and photographs, which are also of historical value. In order to achieve this institutional objective, which includes future historic research, it will be necessary to generate economic support. Outreach activities that gain the attention of donors, volunteers, and local youth may help to obtain this goal. This collection has enormous patrimonial value. For the museum staff and the community at large, it poses great challenges in terms of research, preservation, and promotion.

How the Excavation Techniques of the 18th, 19th, and 20th Centuries Determined the Fate of Opus Vermiculatum Mosaics at Pompeii

Kevin A. Wohlgenuth, Conservation Intern, Preservation Department, Arizona State Museum

Between 1759 and 1931, with the discovery and early excavations of the veritable “city-museum” of Pompeii, 37 opus vermiculatum mosaics were unearthed. During that time, nine directors of excavation imposed their own ideologies and methodologies on the excavation and preservation of these mosaics. This paper discusses how the decisions made by the early directors affected the physical and contextual states of preservation of the opus vermiculatum mosaics. The majority of these mosaics were discovered before the 20th century when the standard practice at Pompeii was to remove artifacts deemed historically or artistically significant for display at what would become the National Archaeological Museum of Naples. Because of this, many of the mosaics were preserved from the damage that is visible in the deteriorative state of some of the mosaics left in situ. The removal of these mosaics, however, stripped them of their contextual significance which is essential for understanding art in its architectural setting. It is only when both the artifacts and the context are preserved that a comprehensive understanding of the site is achieved. Therefore, ascertaining the motivations of the directors allows us to see how the balance between preservation of the object and preservation of context is manifested.

This study makes use of both contemporary, published examinations of Pompeian mosaics and mosaic conservation as well as historical documents, including excavation reports and correspondence between the directors of excavation and various officials within the Italian government and at Naples’ National Archaeological Museum. By using both historical

documentation as well as more recent research, I analyze trends in the way that the opus vermiculatum mosaics were treated based upon the time period in which they were discovered.

The opus vermiculatum mosaics provide an excellent case study because their exceptional construction and use of minute tesserae to achieve incredible detail made them valued archaeological discoveries deemed worthy of preservation by the directing archaeologists. The 37 mosaics comprise a small percentage of all mosaic pavements at Pompeii, yet they are the most represented mosaic type on display in the National Museum because of their superior artistic qualities.

The techniques of excavation for these mosaics were ultimately the choice of each individual director, but factors such as state of preservation and political pressure influenced their decisions. Conservation and preservation methodologies had not fully been developed when the opus vermiculatum mosaics were discovered at Pompeii, therefore, the excavation techniques of the 18th, 19th, and early 20th centuries played the most pivotal role in their preservation. Although the traditional methodologies that were deemed appropriate for the protection of mosaics during these times are not effective in the face of new, devastating elements such as pollution and mass tourism, through an understanding of their development at Pompeii it is possible to understand the decisions made by the archaeologists concerning these mosaics, how they affected the state of preservation of the mosaics, and how these mosaics might possibly be saved for future study.

The Introduction of a Multidisciplinary Approach in Contemporary Art Restoration in Chile: The Successful Case of Restoring the Work of Jose Ventunelli

Javiera Carola Gutiérrez Ibañez, Licenciada en Arte con Mención en Restauración, Pontificia Universidad Católica de Chile ; and Carolina Cox Mujica, Licenciada en Historia, Pontificia Universidad Católica de Chile, Master en Historia y Gestión de Patrimonio Cultural, Universidad de los Andes, Chile (LACS)

José Venturelli (1924–1988) was a Chilean painter that became internationally known for his mural painting, acrylic painting, and engraving. His work and technique was widely influenced by his long permanence in Latin America, Europe, and China, and is always anchored in the life of ordinary people, the social injustices of the industrial society and oppression. His awards include the gold medal at the Leipzig International Painting Exhibition in 1959, the issuance of his painting *Little Girl* in the form of stamps in the Democratic Republic of Germany in 1968, and a foundation name after him in Switzerland and Chile.

In March of 2011, Venturelli’s foundation requested the help of the Chilean National Centre for Conservation and Restoration (CNCR) for the restoration of a group of pieces, mostly acrylics on canvas, that were showing an advanced level of deterioration.

The team in charge of the project faced two key challenges: First, the lack of previous experience of conservation and restoration of contemporary art in the country. Second, it was the presence of deterioration due to microorganisms. Both challenges pushed the team to look for a more innovative and integrated approach based in three areas: historical, visual, and scientific. The objective of the historical area was to reconstruct the social, historical, and political context of the work, to establish a first set of hypothesis around materials, techniques and iconography used by the artist, and to discover the artist's original conceptualization of each of the pieces. In the area of visual documentation, the use of techniques like macro photography, ultraviolet fluorescence and infrared transmitography/reflectography, allowed the team to observe preliminary drawings, pentimenti, grids, strokes or strata, as well as revealing the changes which broke the aesthetic reading of the works. Finally, in the analysis lab, the experts performed stratigraphical analysis and materials analysis using Raman and Fourier Transform Infrared Spectroscopy (FTIR), which complemented the study of techniques and materials used by the painter. At the same time, they identified the microorganism responsible for the deterioration of the artwork. The information that came from the lab was a key contribution in the decision-making process of the project.

This project demonstrates the techniques and materials used by Venturelli, leaving a tangible record of the information that was only in the minds of the people he met. At the same time, it is a breakthrough in the conservation area, given the new technical scenario that led to the study of new materials and processes barely used in restoration in Chile. This multidisciplinary approach led us to obtain successful results in the study and preservation of contemporary art. This has created new points of view about one of the most important artists in our country and has contributed to the dissemination of his work. For these reasons, this project represents a great contribution in all areas involved, especially the conservation of contemporary art.

Library and Archives Conservation Education Needs: Results of a Study of Current Practitioners

Jennifer Teper, Conservation Department, University of Illinois at Urbana-Champaign; and Laura Bedford, Assistant Book Conservator, Book Conservation Department, Northeast Document Conservation Center (NEDCC)

Upon the dissolution of the University of Texas at Austin's Book and Paper Conservation Training Program, numerous discussions took place simultaneously amongst practicing library and archives conservators concerning the future of professional education in their field. With the recent funding by the Andrew W. Mellon Foundation of pilot book conservation training modules at three of the established art conservation programs in

the United States (University of Delaware, New York University, and Buffalo State College), the authors sought to gather information on the various training components practicing book and paper conservators felt were relevant to a successful career in library and archival settings. In examining the variety of training avenues, current practitioners travelled to gain their expertise and knowledge, the authors hope to identify the most valuable educational and experiential aspects so they might be prioritized in the evolving future of conservation training.

The authors designed a combination multiple-choice and open-ended question survey, which was posted on the Conservation Distribution Listserv, the BookArts-L listserv, and the Preservation Administrators Discussion Group listserv in the spring of 2011. Areas of focus in the survey included: educational background and training of practicing conservators, professional career paths, current responsibilities, the role of a degree in their ability to perform their given professional job, contributions to the field, and professional membership and activity level.

Data points collected from the 145 respondents will be presented independently and in combination to seek out latent correlations between topics such as educational training and degree of professional involvement, or on-the-job training and breadth of current responsibilities. Individual answers to open-ended questions will be parsed for clues to areas of development critical to optimal job performance, with the goal of illuminating positive aspects of all methods of training experienced by those currently serving as library and archives conservators. While some of these components may be of use to the developing graduate training programs, other approaches may lend validation to alternative training venues such as apprenticeships.

Patterns of Degradation and Their Relation to Ceramic Production Technology

Marilen Pool, Brunella Santarelli, and Dr. Nancy Odegaard, Department of Preservation, Arizona State Museum, University of Arizona

The Arizona State Museum in Tucson, Arizona houses a collection of over 20,000 Southwestern ceramic vessels from both archaeological and ethnographic contexts. The collection has been designated an American Treasure by the Save America's Treasures program and was awarded a grant to fund the survey and re-housing of the collection. The Pottery Project lasted from 2003 to 2008 during which conservators surveyed the collection and cataloged the data in the Southwest Pottery Database. As a continuation of this project, the IMLS-funded "Conservation of Southwest Ceramic Vessels" phase of the Pottery Project began in October 2010 and will continue through 2012. The purpose of the Pottery Treatment Project is the treatment of 700 vessels that were identified during the initial survey as having a medium to high conservation priority.

The treatment protocol begins with documentation of

the vessel's condition, as well as any observable technological indicators, such as construction methodology and surface treatment. This data is recorded in a Microsoft Access database for conservation treatment reports, along with the description of the treatment and before and after photographs.

The most common construction technologies in the Southwest are the coiling and paddle and anvil techniques. Construction technologies vary by area and culture. Common surface treatments include slips and paints, both organic and mineral, and corrugated surfaces. The purpose for recording this data for all of the treated vessels is to determine if there is a correlation between construction technology and surface treatment and patterns of degradation. By incorporating this data in the initial condition report, it is possible to discern patterns of degradation and to improve understanding of how they relate to the technology of ceramic production.

Preliminary Analysis in Diversifying Museum Studies: American Indians in Conservation

Martina Dawley

Why do so few American Indians become conservators? An attempt to answer this question through an internship, internet resources, a literature review, and conversations with local conservators, led to the observation that there are very few conservators of American Indian ethnicity. As the topic the author's dissertation research, locating and interviewing American Indian conservators is a major component of this study. This poster will present the author's preliminary findings with a particular emphasis on the difficulties American Indians face becoming the custodians of their own cultural material and human remains. The broad questions this study seeks to explore include: why there are so few American Indian conservators, are there American Indian conservators who oversee American Indian cultural material and human remains in both tribal and mainstream museums, and how might practicing American Indian conservators help to empower Native nations.

Preliminary Results from an Investigation into the Color Shift from Purple to Brown in a Set of Madder-Dyed Cylinder-Printed Furnishing Fabrics from the Winterthur Museum

Anne Getts, Graduate Fellow, Winterthur/University of Delaware Program in Art Conservation; and Joelle D. J. Wickens, Assistant Conservator and Winterthur Associate Professor, Winterthur Museum

A curious shift in color from purple to brown has been observed in some of the printed textiles within the Winterthur Museum collection. Presented here are the preliminary results of the investigation into the color shift found in a set of quilted

furnishing fabrics. Dyed with madder and cylinder-printed on cotton, the furnishings under investigation were constructed in 1953 from historic 19th-century fabric. These textiles were displayed in the museum approximately six months of every year, for four decades. Originally purple in color, the fabric has undergone varying, inconsistent degrees of discoloration. While some of the objects remain purple, others have shifted to brown.

Analysis with Liquid Chromatography–Mass Spectroscopy (LC-MS) indicated that no degradation products associated with alizarin or purpurin, the main colorants in madder, are present in the discolored areas; this suggests that the color-shift is being caused by unidentified external factors. Promising areas for further investigation include the oxidation state of the mordant and the effect of pH on the dye–mordant system.

By gathering information on the fabric and its history of use, the museum environment within which the furnishings were displayed, the condition of the textile objects, and the degradation pathways associated with the materials from which the furnishings were fabricated, hypotheses were formed to explain the cause of discoloration. It is thought that environmental factors have played a role in the color shift, in part by contributing to the degradation of the cotton substrate, which has in turn affected the pH of the objects. The ultimate goal for this research is to identify the cause of the color shift and use this information to develop a protocol to help prevent color-shifts in similar, madder-dyed objects.

Preservation Collaboration—Academic and Public Library

Holly Prochaska, Head of Preservation Services, Preservation Services Department, University of Cincinnati; and Jason Buydos, Public Library of Cincinnati and Hamilton County

Beginning in January of 2012, the Public Library of Cincinnati and Hamilton County (PLCH) and the University of Cincinnati Libraries (UCL) will begin a long-term collaboration to provide conservation and preservation treatments in an equally-managed, staffed, and equipped preservation lab situated on the University of Cincinnati's main campus.

Employees from both institutions will work on the general circulating and rare/unique collections of each institution. The division of labor for all work performed by the preservation lab will be split evenly between UCL and PLCH and will be tracked using a weighted point system. Additionally, both libraries will engage in mutual aid during disaster recovery.

The preservation lab will not only perform preservation services and conservation treatments on the collections of the joint owners, but will also provide these services to outside organizations. Revenues from contracted services will be used for supplies, equipment, and contract conservation of non-paper based collections (textiles, film, etc.) better addressed by specialty labs.

It is hoped that this collaboration between a public library

and an academic library will serve as a model for other Ohio institutions that have holdings of rare and fragile cultural materials in need of preservation.

The preservation lab project was recently bolstered by an \$81,000 grant award from the State Library of Ohio, providing Year 1 support for equipment and supply purchases.

Promoting Conservation in the Archaeological Site of el Purutal, San Agustín World Heritage Site, Colombia

Maria Paula Alvarez Echeverry, Corporación Proyecto Patrimonio, Columbia

It is surprising that sculptures carved and painted in the 6th century AD by the inhabitants of the archeological area of San Agustín in Colombia have been preserved until now in such a good state of preservation. It is even more surprising that, at the beginning of the 2011, someone covered the polychromy of the 6th century with contemporary paints (enamel and vinyl). Instead of showing their age, these sculptures were renewed and had the appearance of false documents of the past.

Alarmed by the damage committed on these important sculptures, the Colombian Archeological and Historical Institute decided to hire conservators Maria Paula Alvarez and her collaborators Isabel Cristina Quintero and Camilo Betancur during the 2011 Holy Week (the peak of the tourism season) to conserve the sculptures. The conservation activities included removing the newly-added paint layers and recovering the original polychrome of the sculptures from El Purutal.

There are conservation procedures that allow for removing layers of varnishes or paintings and preserve underlying layers and original polychromy. These procedures involve the use of organic solvents which are volatile substances do not leave residues and allow the elimination of paint layers in a selective way.

These methods were well-suited to the case of the El Purutal sculptures. The treatment began with a photographic record of the sculptures and solvent testing. The most effective solvents were used to remove the recent paint (red, yellow, and brown) without affecting the original paint layer (red, yellow, ochre, black, white, and gray mineral pigments obtained from local soils and clays).

The removal of the contemporary colors in the two sculptures was satisfactory and reached a good balance of cleaning and preserving the original polychromy. However, in some small areas where the stone and the original paint layer was friable, the contemporary retouching could not be removed. The inability to fully remove these contemporary paints and the fact that the repainting happened indicates a threat to the preservation of these sculptures and the necessity of reduce vandalism through community involvement.

During the onsite conservation work, conservators patiently explained the procedures carried out on the sculptures in

simple terms to visitors, guides, tourist services, park officials, and inhabitants of the region so they would better understand the threat to their preservation. The community response was very positive. People expressed both admiration and curiosity to know the nature of the original materials, the results of previous studies, and the details of the conservation process that allowed the recovery of original paint layer. They also showed interest in learning about the discipline of archaeological conservation in Colombia and understood the importance of been involved in the task of preserving cultural heritage. In summary, this conservation project allowed for the recognition of the value of this important archaeological site and raised awareness that will contribute to its long term protection.

Reaching Out/Looking In

Emily Williams, Conservator of Archaeological Materials, The Colonial Williamsburg Foundation

Over the past decade, Colonial Williamsburg's Department of Conservation has undertaken an ambitious set of activities aimed at reaching out to the general public and engaging them in the process of conservation. Among other programs these activities have included an Electronic Field Trip entitled *Treasure Keepers* that reached over six million fifth to eighth graders on each of its two airings, and the opening of an exhibit called *Conservation: Where Art and Science Meet*. During the course of each project, the conservation staff either took the lead in or played a major role in the shaping of the storyline but ultimately had to relinquish some control to colleagues in allied fields, such as exhibit design, film production, and educational resources.

This poster will discuss what was learned from each project and consider how comfortable conservators are (or are not) in allowing others a voice in the dissemination of their message. Many hours were spent parsing particular points of terminology and narrative and yet the question must be asked whether the public is ultimately aware of or interested in these nuances and whether they are important to the advancement of our field. To what extent does broadening our message create an impermeable barrier through which meaning is lost or a filter through which important information may pass more freely? When reaching out, who is our audience and how best do we share our values and vocabulary while making them meaningful within their values and vocabulary?

The Recovery of St. Trinity Episcopal Cathedral Wall Paintings, Port-au-Prince, Haiti: An Assistant's Perspective

Junior Norelus, Le Centre du Sauvetage des Bien Culturelles, Port-au-Prince, Haiti (LACS)

Introduction

Most of the 14 wall paintings at the St. Trinity Episcopal Cathedral were destroyed during the terrible earthquake of January 12, 2010. A year later, among broken walls and piles of rubble, I saw only three standing murals: *The Last Supper* by Philomène Obin, *Native Procession* by Préfète Duffaut, and *Baptism of Christ* by Castera Bazile. The murals, painted on mortar, were severely cracked in many pieces and some sections were lost. It was almost impossible for me to imagine that anything could be rescued from that devastated site, let alone remove them from the walls, as wall paintings conservator Viviana Dominguez and architecture conservator Rosa Lowinger explained to me.

I was selected to work as an assistant for the project after being interviewed by the Haiti Cultural Recovery Center Chief Conservator Stephanie Hornbeck and Project Manager Olsen Jean Julian. I became part of a team composed of four Haitian artists and two woodworkers under the direction and supervision of Viviana and Rosa. They took turns working with us, and we had to continue on our own following their instructions. After working together, the conservators decided I would be the right person to supervise the project while they were not present. It was a challenging task but I was very happy to do it.

Methodology

We started by cleaning the paintings with very soft brushes. Next, we fixed the powdery paint with sprayed applications of gum arabic. We traced all the murals with plastic sheet and permanent marker. The walls were divided into fragments for removal. These areas were outlined with chalk and cut with a grinder; however, some of these fragments had large, deep cracks that were also used for dividing the segments. We chisled into the cracks to make sure they were separated completely from the wall and adjacent fragments. Small drawings were made of the paintings with a grid (with letters and numbers) that worked as a map to locate each of these fragments. We built a wood lattice structure on top of each fragment and chiseled from the edges into the back (between the wall and the mortar). We brought them down on light cardboard trays that we made for each fragment. Once we placed them on a table we leveled the mortar on the back with a grinder and also consolidated and secured the mortar with different methods that involved adhesive and mortars. The process continued with the removal of the facing and wood structure and reassembly of very small fragments.

The project was presented to the Haitian press and public in two press conferences (April and June). I and my co-workers, with the introduction of Ms. Dominguez, had to explain to

the journalists various aspects of the treatment. My poster will briefly describe the process of stabilization and removal of the St. Trinity Episcopal Cathedral murals and how the project was presented to the Haitian media.

Restoration of the 1930s Point Farm Gardens and Landscape of Rose Greely

Betty L. Seifert, Curator, Administration Department, Jefferson Patterson Park and Museum

Current economics and low visitation create an ethical dilemma—restoration with the problem of finding appropriate cultivars and reincarnating the original plans versus adaptive use of historic gardens to provide revenue generation with an emphasis on looking good.

Rose Greely, a pioneer and noted landscape architect, designed gardens for the country home of Jefferson Patterson in 1934–1935. Rose concentrated on residential landscape design emphasizing the integration of the home into the garden. The designs for Jefferson Patterson were formal. The landscape surrounding the house included native plants and trees to form a park-like surrounding with a striking and beautiful view as a focus. These gardens with dry-laid stone walls, paths, boxwoods, and beautiful perennials were a real show place, attracting Garden Club tours as early as 1936. They are part of the life estate transferred to Jefferson Patterson Park and Museum after the death of Mrs. Jefferson Patterson. A restoration project was initiated in 2003 with volunteers who hoped to restore the original beauty of the gardens. However, money and support have dwindled in recent times. People who volunteered have also had to adjust their time due to economic factors. Coordination of state support, volunteer assistance, historic research and conservation of architectural features is the challenge presented in this paper.

The Sacrifice by James Nachtwey: Gallery Installation of a 32 ft. 3 in.-long Photograph with Flexible Magnets

Stephen Heer, Mountmaker, J. Paul Getty Museum

The Sacrifice, a 32 ft. 3 in. single-sheet inkjet print by the award-winning photojournalist James Nachtwey, was included in the exhibition *Engaged Observers: Documentary Photography Since the Sixties in the Center for Photographs* at the J. Paul Getty Museum in 2010. To display the photograph, alternatives to standard framing were required due to its extraordinary size and other criteria imposed by the artist, conservator, and exhibition curator. A simple but very effective system of using flexible magnetic strips to secure the photograph to the gallery wall was designed, tested, and implemented.

The method for mounting and displaying *The Sacrifice* had to meet several conditions considered essential by the artist

and the museum staff. Nachtwey specified an aesthetically minimal, if not invisible, mounting system absent of glazing. The photograph had to be mounted securely for the 19-week exhibition period. The installation process needed to be safely and feasibly executed by the museum staff. Finally the system had to be non-invasive; it could not cause permanent changes to the sensitive image surface nor could it involve applying attachments to the paper support.

By modifying commercially available magnetic strips, the mount technique successfully met these criteria. It is a low-cost, viable alternative for mounting oversize photographs, which have become more prevalent with advances in printing technologies. The poster will include details and images of the installation method including preparation of the gallery wall with a metallic receiver for the magnetic strips, methods and materials for isolating the magnet and receiver from the print, cosmetic treatment of the magnetic strips to minimize their appearance, and the actual installation process used to transfer the rolled print to the gallery wall.

Salt Damage Related to Physical Properties of Ceramics

Brunella Santarelli

A pressing concern in the conservation of archaeological ceramics is the damage caused by soluble salts. When salts crystallize in the pores of a ceramic their expansion affects the internal structure of the matrix and causes powdering and spalling of the surface, thus weakening the ceramic body. Salt damage is increased if the ceramic is not treated and stored appropriately after excavation. Salt damage to ceramics is of particular concern to conservators working with ceramics from the Southwestern United States. The Arizona State Museum in Tucson, Arizona has a collection of over 20,000 Southwestern ceramics; a survey of this collection identified damage caused by active soluble salts as a pressing concern to the preservation of the collection. Certain patterns of damage were observed during this survey. This research is concerned in identifying the factors that affect these patterns and how they relate to the preservation state of a collection.

The factors that affect salt damage are the identity of the salt, the characteristics of the substrate, and the environment. A set of Southwestern ceramics representative of the ones with the highest levels of salt damage in the collection of the Arizona State Museum was selected for a study of their material properties and how they relate to degrees of observable damage. A material characterization was carried out to study the physical properties of the ceramics: porosity, pore-size distribution, and permeability. Salts were introduced into the ceramic samples and they were run through an accelerated aging experiment to model the effect of extreme environmental fluctuations. Damage to the ceramic samples was assessed quantitatively by percent weight loss and percent increase in porosity. The results

from this experiment showed that the physical properties of a ceramic sample determines the degree of damage a ceramic will exhibit from salt action. The construction technology and the surface treatment of a ceramic will also affect the pattern of salt damage observed. The identity of the salt is also an important factor, as the more hygroscopic salts caused the most damage.

This poster will explore the pattern of salt damage observed in the pottery collection of the Arizona State Museum and address the factors that cause salt damage with an emphasis on the preservation of Southwestern ceramics. Understanding these different factors can aid in understanding the pattern of degradation observed in collections, and can provide better guidelines for the treatment of ceramics with salt damage.

Silver Content Survey of Southwestern American Indian Silver Jewelry

Ida Pohoriljakova, Post-Graduate Fellow, Conservation Department, University of Pennsylvania Museum of Archaeology and Anthropology; Dave Smith, Adjunct Conservation Scientist, Teresa Moreno, Associate Conservator, and Nancy Odegaard, Head of Preservation, Arizona State Museum

Scholars and collectors have long suspected that silver used in American Indian jewelry has been used in varying compositions. As part of a documentation and condition assessment survey leading to reorganization and rehousing, a nondestructive study of silver quality was introduced through the use of a portable x-ray fluorescence instrument (pXRF), the Niton XLi with an americium source.

The goal of this study was to conduct a preliminary sorting of the silver jewelry objects based on variance of silver content in the alloy. A goal would be to use the data from this survey to develop a more comprehensive study of composition and alloy distribution in American Indian silver jewelry. It was important that this study not impede the condition and documentation assessment project. Nine non-reagent alloy standards were obtained or fabricated between 56% and 100% silver content and were used to construct a calibration curve. The resulting x-ray analysis curve was found to be linear with respect to percent silver and was evaluated using the least squares method of analysis to give the concentration and associated error for each sample. The older pXRF model proved to maintain its utility when using the americium source.

The silver jewelry collection at the Arizona State Museum is composed of an array of objects manufactured by American Indians from the American Southwest. The objects include buttons, rings, bracelets, squash blossom necklaces, concha belts, bow guards, bola ties, and other traditional items that are frequently ornamented with stone bezels and inlays. The collection is important for documenting the history of silver technology and craftsmanship practiced by the Southwestern American Indian tribes such as the Navajo, Hopi Pueblo, Zuni Pueblo, and Santo Domingo Pueblo.

The silver content aspect of the condition survey has revealed interesting results that will encourage further study. It has foremost shown that a greater than expected variance in silver content exists in the museum's silver jewelry collection. Furthermore, existing trends in the silver content are apparent; for example, objects attributed to different American Indian tribes reveal distinct levels of variance in silver quality. The survey is proving to be successful in exposing information previously unknown about the collection, enabling accessibility to the collection, and providing a wealth of opportunities for future research. This initial assessment will offer a starting point for advanced studies on Southwestern American Indian silversmithing technology, practices, and development.

Structural Stabilization with Visual Integration of Hooked Rugs: A Technique for Filling Lost Pile

Gretchen Guidess, Mellon Fellow, Conservation Department, Historic New England

Visitors touring Beauport, a historic summerhouse in Gloucester, Massachusetts, view and walk over many hooked rugs. These fragile floor coverings are still exhibited in their original historic house context creating a significant conservation challenge. Left unrepaired, tears and holes worsen and present a tripping hazard to visitors. This poster describes methods for creating stabilizing fills for these treasured, yet vulnerable objects.

Hooked rugs were made by pulling strips of fabric through a plain weave substrate using a hand-held hook. The loops, densely hooked with colorful fabrics, form intricate geometric, floral, or pictorial designs. When the substrate becomes damaged, the decorative pile is compromised. Unlike some restoration techniques used to repair hooked rugs, the proposed treatment technique does not remove original material, is reversible, and uses inert materials to recreate the pile.

Several fill methods of increasing intervention, which provide stabilization and visual integration, have been developed for use on the collection of hooked rugs at Historic New England. The approach to filling a loss depends, in large part, on the size of the loss. For smaller losses it was found that a backing fabric of a similar color is sufficient. This poster focuses on compensation and stabilization developed for larger losses. Strips of polyester felt are stitched through a plain weave cotton substrate so that small, quarter-inch loops protrude from the front surface. By properly massing and positioning the loops, the fill resembles the original pile. Where necessary, textile paints are used to adjust the color of the fill material to match the original. The fill is then secured in place by stitching it to the plain weave substrate. Oddy tests were performed on potential felt pile materials to ensure they had no deleterious effect on the original rug material.

Take a Picture, It'll Last Longer: How a Ceiling-Mounted Digital Camera Helped to Improve Preservation and Access to a Quilt Collection

Gaby Kienitz, Head Conservator, Mary Jane Teeters-Eichacker, Curator of Social History, and Steve Happe, Chief Photographer and Photo Archivist, the Indiana State Museum

The Indiana State Museum has an extensive collection of quilts, including the largest collection of Indiana Amish quilts in the world. Stored within rolling drawers of a custom-built compactor unit in a climate-controlled room in a new, purpose-built museum, that collection was visually and intellectually inaccessible. While the new climate-controlled storage fulfilled many preservation goals, the lack of adequate cataloguing with extensive descriptions, photographs and condition surveys resulted in unnecessary handling during exhibit planning, as quilts were carted up to conservation to be unrolled for examination by curatorial and conservation staff to determine suitability for each exhibition.

Many of the quilts had been surveyed in the mid-1980s for the Indiana Quilt Registry Project, but this information wasn't readily available. The museum has a catalog database that contains information that had been migrated more than 10 years before from a previous database with woefully inadequate fields. There were few images, descriptions were often frustratingly terse ("green and red quilt"), and sizes were incorrect. In the condition field for the database, the migrated comments consisted of single numbers usually ranging between 1 and 5, with no additional explanations.

Nearly three years ago, the cultural collections manager, the curator of social history and the textile conservator at the Indiana State Museum collaborated to begin a survey project to catalog, condition report and photograph the quilt collection, with the purpose of improving catalog data and updating storage conditions. The start of the survey was delayed for a period of time because of the technical considerations of how to photograph the quilts. Preservation issues (especially handling), space, and potential cost of the photography set-up prevented the start of the project until the staff photographer developed a method to install a remotely operated digital camera on the ceiling of the conservation lab, pointed down at a group of rolling tables below.

This ingenious, though slightly quirky, assemblage was not an immediate success, but by learning the limitations and exploring the possibilities of this system, it has opened the floodgates on a project that resulted in not only achieving the original preservation and access goals but also discovering additional benefits. The photography setup minimized handling of the artifacts during surveying and was efficient for staff in terms of time and ergonomics. Accurate photographs, descriptions and condition surveys have made exhibit planning efficient and entirely digital. The quilts have all been rehoused including the nearly 10% that

were discovered to have been stored on old cardboard tubes. Extremely fragile quilts were removed from rolled storage and are housed in their own custom, extra-large storage boxes. The catalog records from the quilt collection were the first to be available through the museum's website and are now the most visited artifact type of our online database. The project has been successfully extended to include all of the museum's flat textiles.

A Tale of Two Systems: Synergy in Managing Risks to People and to Collections

Catherine Hawks, Conservator, Research and Collections Department, NMNH, Smithsonian Institution; and Robert Waller, President, Protect Heritage Corp.

The two systems of managing health and safety and of managing preservation of cultural property have many parallels. Either, or both, can exist as predominantly habit-based systems. However, when managed from a proactive perspective, they can be considered goal-directed systems. In the first case, the goal is to maintain health and avoid accidents to people. In the second case, the goal is to avoid damage and loss to cultural property. Both goals are clear, widely accepted, and even inarguably noble and worthy, seemingly a great advantage for both systems.

Habit-based and goal-based approaches are not mutually exclusive. A well-managed goal-based system will foster adoption of good habits that then allow the systems to operate effectively and economically. Both health and safety and cultural property preservation systems will operate best when they are mutually supportive. In many instances, this mutual support arises automatically as a consequence of the basic similarities of the systems—both strive to avoid any unnecessary and harmful interaction of people, energy and materials.

As a simple example, wearing appropriate gloves while handling objects protects the wearer as well as the collection object/specimen from contamination. Similarly, avoiding abrasion and decrepitation of inherently toxic collection objects has clear benefit both to the objects and people that are near them. There are many such examples of complete correspondence of purpose between the health and safety and preservation systems. In these cases both systems will naturally be mutually supportive.

Not all potential intersections of the two systems align automatically. As an example, most institutions that care for cultural property conduct regularly scheduled health and safety inspections of all work areas. Few institutions have a similar routine comprehensive inspection for collection preservation issues. The management of risks to collections could benefit from including a collection care specialist in the team conducting a health and safety inspection. That specialist would be tasked to look for and document situations that pose, or exacerbate, risks to collections. This would both ensure the regularity of such inspections and foster synergism between the two systems.

Some examples of conflicts between the two risk

management systems can also be found. For instance, an old collection of pharmaceuticals can pose many risks. From a health and safety perspective, disposal seems the obvious solution. From a curatorial perspective, keeping contents intact for future analysis may be important. The exercise of developing a creative solution that protects both people and collections can lead to improved understanding among all parties.

Viewing health and safety and cultural property preservation as parallel and closely related risk management systems opens the way to improvements in both. Combining the two encourages synergies that can lead to effective risk management and resource allocation by custodians of our collected heritage.

Tell Us Your Story! Preserve Your Story!

Karen Jones, Book and Paper Conservator in Private Practice

On April 25, 2011 Society of Rocky Mountain Archivists (SRMA) and the Western History & Genealogy (WHG) division of the Denver Public Library (DPL) teamed up to offer an event for National Preservation Week. Spearheaded by SRMA Preservation Representative Karen Jones, the event featured the opportunity to make an appointment for a free 15-to-20-minute conservation consultation with a professional conservator.

Members of the public were invited to bring in their family treasures in a variety of formats, and for this purpose Jones recruited five different specialists in the following formats: paper, books, photographs, textiles, paintings, and artifactual objects. Following the conservation consultation, Western History & Genealogy staff under Jamie Seemiller, program administrator, Western History & Genealogy, DPL offered the participants the opportunity to scan and/or digitally photograph their items, and opt to have these images included in the Institute of Museum and Library Services-funded "Creating Your Community" online participatory archives that will launch in January 2012 (creatingcommunities.denverlibrary.org). Laura Ruttman, SRMA outreach coordinator, facilitated the marketing and local arrangements with DPL.

We marketed the Preservation Week event through emailing a PDF flyer to historical societies and library listservs, posting on Facebook, Twitter, *The Denver Post's* "Your Hub" website, and posting on the official National Preservation Week map. We found that for this event and our target audience, the most successful method was old-fashioned advertising: emailing flyers to be posted in various institutions.

The event was a success. There were approximately 40 registrants, many of whom brought multiple items to be examined, and thus they met with more than one conservator each.

The items reviewed ran the gamut: letters and family Bibles, colorful genealogical charts and scrapbooks, family photographs in multiple physical formats, silk wall-hangings and oil paintings, 19th-century projection paintings, dolls, teacups, an antique player harmonica (similar concept to a player piano!), and even a 12th-century sword! Our six conservators were busy the

entirety of the four and a half hour event, as well as five WHG staff who were involved using a flatbed scanner, a digital camera and tripod, and a large-format scanner.

Overall, the greatest measure of our success was that a large number of the participants asked if the event would be repeated next year. Many of the participants were eager to tell the stories behind their documents, in addition to receiving conservation advice, which indicates great interest in the Creating Your Community project.

And finally, of course, 40 more people now have an increased appreciation for the work of libraries, archives, and conservators.

Testing, Analysis, and Conservation of a 1566 Tyndale Bible

Ashley L. Bartman, Conservation Assistant, Ohio State University Libraries, Ohio State University

The subject of this research project is an English Bible translated by William Tyndale and printed by Richard Jugge in 1566. This Bible is unique in that each individual page of the text is covered with a slightly opaque yellow coating. The use of this unusual coating has also been observed on similar, contemporary Bibles and two other Tyndale Bibles. This project focuses on answering the questions of what the coating is, why it was put there, who put it there, and how to approach the preservation of such a rare document. Loose fragments of original material provided an opportunity to perform extensive instrumental analysis, which included Raman microscopy, attenuated total reflectance infrared spectroscopy, and Fourier transform infrared spectroscopy. Other non-instrumental analyses such as solvent testing and testing on period materials were also executed. According to the results of the analyses, it has been determined that the coating is wax, specifically beeswax. There is no clear reason for coating the pages with wax. A few possibilities include intentionally imitating a better known Tyndale Bible owned by Anne Boleyn, an early attempt at restoration, or as a disguise to protect the Bible from the hands of Cardinal Wolsey or Henry VIII's spies who were instructed to burn any Bibles they encountered. This study is significant to the field of paper conservation because the coating on the pages is so rare and has not been previously studied. Analyzing why the coating was applied could reveal important information concerning how people of the 17th and 18th centuries treated their important literature.

Two Conservators, 10 Million Objects: Advancing Conservation within the National Park Service

Brynn Bender, Senior Conservator, and Dana Senge, Objects Conservator, Intermountain Region Museum Services Program, National Park Service

The conservation program of the National Park Service's Intermountain Region Museum Services Program is designed to support the preservation of museum collections in its eight states of Montana, Wyoming, Utah, Colorado, Arizona, New Mexico, Texas, and Oklahoma. There are 90 parks in the region with a wide range of collection materials from historic, artistic and archeological provenance adding up to over 10 million items. Approximately 5.5 million are stored at the Western Archeological and Conservation Center, the physical home of the conservation labs. The remainder are stored at parks and repositories throughout the region. The conservation team is active both inhouse and onsite at parks to address conservation and preservation issues.

Outreach is a major part of the daily lives of the conservation team. This includes conversations with park museum staff to discuss issues large and small, addressing requests for assistance and onsite work to survey or treat collections. Parks often have different approaches to support their museum collection. Successful outreach occurs through cultivating relationships and trust between curators and conservators, continuing to improve communication and education, remaining receptive and flexible to other programs and specialists and project design that takes into account the specific assets or limitations of a park. Recommendations from the conservators are often used by park staff to advocate for special projects that will improve preservation of the collections.

The position of the conservation program within a regional structure of the National Park Service allows outreach and advocacy to exist on many levels including: open communication with an individual park regarding collection needs, identifying trends across parks to address a greater need, and participating on multidisciplinary teams to advocate for preservation. Through their work reaching out to parks to address preservation issues or playing a supporting advocate role for the park museum staff, the conservation team continues to develop improved methods of outreach and advocacy for conservation and preservation within the Intermountain Region of the National Park Service.

Under, Over, and in the Mix Of: A Practical Guide to Telling the Difference Between Types of Polychrome Decoration on English Earthenware Figures

Lauren Fair, Winterthur Museum, Garden, and Library

Earthenware sculptures of figures made in Staffordshire, England, in the 18th and 19th centuries fill a unique niche within the realm of ceramic art. Taking after the decorative traditions at the more notable European porcelain factories, such as Meissen and Sèvres, the Staffordshire potteries created their own market in England and abroad by manufacturing luxury goods in pale-bodied earthenware that were consequently more affordable to the working classes, allowing workers to set their tables and decorate their mantles in a style emulating that of the upper classes.

This poster will summarize and highlight the different decoration techniques present on these figures, focusing on the colored glazes, underglaze oxides (those known as “Pratt colors”), and overglaze enamels. For instance, through analysis it was determined that green glazes consist of copper oxide dissolved in lead glaze, while green underglaze colors consist of concentrated mixtures of blue cobalt oxide and Naples yellow and/or lead-tin yellow. Understanding this compositional difference not only helps to make visual distinctions, but it adds to the technological understanding of these objects.

While overglaze enamels may be easier to identify by eye, the information gleaned from this study further enhances our understanding of this decorative type. One example is that lead chromate compounds were found to be the coloring components of orange enamels from the late 18th and early 19th centuries in Staffordshire. This is an important discovery because the use of lead chromates in enamels has not been documented at Meissen or the other leading European porcelain factories of the time, thus demonstrating a technological advancement of Staffordshire potters and enamel makers.

The information comes out of a larger year-long fellowship funded by the Samuel H. Kress Foundation and completed by the author at Winterthur Museum under the supervision of the Conservation, Curatorial, and Scientific Research Departments. Winterthur currently holds the largest collection of Staffordshire figures in an American museum, allowing for an in-depth study that involved collecting hundreds of x-ray fluorescence spectra on the three classes of colored decoration, as well as scanning electron microscopy and Raman spectroscopy data where microsampling was possible, for a selection of 37 figures from the collection. This poster will provide the reader with the basics, focusing on showing the differences—both visual and chemical—between three decoration types: colored glazes, underglaze oxides, and overglaze enamels.

It is the author's hope that the poster will not only provide a summary of a little-studied area of ceramic technology, but that it will also provide a point of reference for further exchange about the evolution of the pyrotechnologies of the 18th and 19th centuries.

The Use of Orasol Dyes for In-situ Recoloring of Taxidermy Specimens at the American Museum of Natural History

Becca Pollak, MA and Certificate of Advanced Study in Art Conservation student, Buffalo State College; Julia Sybalsky, Conservation Fellow, American Museum of Natural History; Elizabeth Nunan, Assistant Conservator, Natural Sciences Conservation Department, American Museum of Natural History; Judith Levinson, Director of Conservation, Anthropology Division, American Museum of Natural History; Lisa Elkin, Chief Registrar and Director of Conservation, American Museum of Natural History; and Dr. Corina Rogge, Andrew W. Mellon Assistant Professor in Conservation Science, Art Conservation Department, Buffalo State College

In 2010–2011, the American Museum of Natural History completed an ambitious program of renovation to the habitat dioramas in the Hall of North American Mammals. Each diorama is comprised of three main components: mounted taxidermy specimens, background paintings, and foreground materials both natural and manufactured. To effectively transport the viewer into each habitat, a seamless transition between the three-dimensional foreground materials and exactly detailed background paintings must be maintained. Having been on permanent display in harsh environments for over 70 years, many of the zoological specimens had become faded to such an extent that they no longer reflected the natural appearance of living animals, compromising the overall impact and effect of the dioramas. As part of the re-lamping project, the renovation team worked to find a suitable colorant that could be used in restoring naturalistic color to specimens that had become faded over time. The scale of the project as well as its parameters led us to employ familiar conservation materials in innovative ways to achieve the desired visual effects.

Several important factors limited the materials that could be considered for recoloring. The high annual light exposure level necessitates that the colorants have a high lightfastness rating, to increase time between treatments. Because the specimens are permanently mounted into the diorama floor the treatments must necessarily be in-situ, without rinsing of excess colorant. To maintain the life-like appearance of the specimens there must be minimal alteration to the appearance and physical alteration of the hair. Reversibility and retreatability are also of concern for these unique and irreplaceable mounts. Colorants tested include commercially available taxidermist acrylic paints, 1:2 metal complex azo-dyes (Orasol) with known applications in the conservation field, and XSL colors, a new series of water-dispersible micronized pigments.

Colorants applied to different proteinaceous substrates including wool cloth and bison fur were examined using polarized-light and scanning electron microscopy to visualize changes in fiber morphology due to colorant application. The lightfastness of the test swatches was evaluated in comparison to Blue Wool standards using microfade testing with ultraviolet

filtering and in a light aging chamber with an ultraviolet component. Real-time fading within the dioramas themselves is ongoing.

Ultimately, the Orasol dyes were chosen as best suited for overall recoloring applications, mainly due to good general light fastness, limited effect on hair morphology as well as retreatability. In this poster, we discuss the challenges involved in determining the lightfastness of the dyes, including the effect of solvent choice on lightfastness. The origins of this solvent-sensitivity as well as proposed modes of interactions between the dye molecules and the substrates are also discussed. It is hoped that these results will illustrate the usefulness and applicability of this method and encourage other institutions with discolored and non-representative taxidermy mounts to consider it.

PROFILE

Location

The Walters Art Museum Baltimore, MD, USA

Exhibition

Lost and Found: The Secrets of Archimedes

Medium

Medieval Parchment Manuscript

Time

October 16, 2011 - Jan 1, 2012

Glazing

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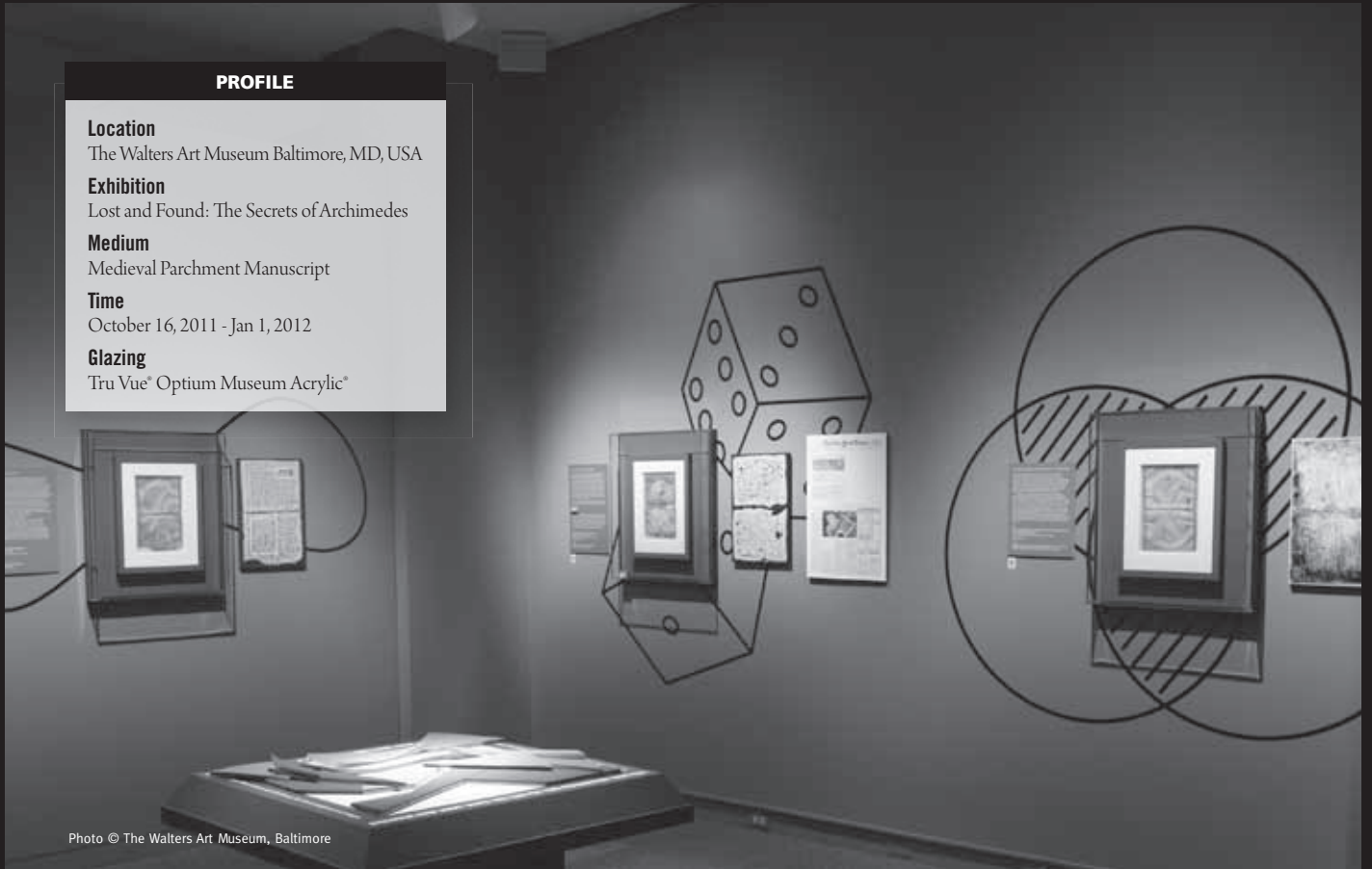


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