western association
waac
for art conservation
Newsletter

January 2017 Volume 39 Number 1

President's Letter

Randy Silverman

Preparations are already underway to welcome you to Utah for the 2017 WAAC annual meeting. Please mark your calendars now – it is going to be a meeting filled with great comradery and professional engagement. Thanks to the 2002 Winter Olympics, Salt Lake City now has an effective light rail system to whisk you from the Salt Lake International Airport directly to the University Guest House. Rooms at the Guest House will cost only $110 per night if you reserve in advance, and I'll provide more on that when registration opens.

Monday 25 September will include a day-long pre-conference in Brigham Young University's phenomenal Rare Book Room in Provo. This stellar collection is the most important assemblage of rare books in the western triangle between Chicago, Austin, and Los Angeles. Highlights take in both manuscript books and 450 incunabula, European books printed before 1501. The emphasis on Renaissance printers includes works by Aldus Manutius and his heirs in Venice (600 titles); Henri Estienne, Robert Estienne, and Henri Estienne II in Paris and Geneva (500 titles); Simon de Colines in Paris (300 titles); Badius Ascensius of Paris (60 titles); the Giunta family of printers in Florence (140 titles plus 360 printed Laws of the City of Florence); Froben of Basel (120 titles); and Christopher Plantin of Antwerp (225 titles). Our behind-the-scenes tour will showcase BYU's extraordinary rare book storage facility.

Other highpoints will include an opportunity to visually compare Johannes Gutenberg's first carbon-black printers ink developed for his 1455 Bible (*Biblia Sacra*) with William Morris's black ink used to print the magnificent 1896 Kelmscott *Chaucer* with its 87 wood-cut illustrations by Edward Burne-Jones. Also, Louis Prang's vibrant chromolithographs for Thomas Moran's 1876 portfolio, *Yellowstone National Park,* are some of the finest examples of the technique ever created.

The conference proper will be Tuesday-Thursday 26-28 September 2017 at the University of Utah's Marriott Library. WAAC's board has already received several proposals for presentations, ***so please consider this a first call for papers***.

This year's reception will be sponsored by disaster recovery firm Belfor USA, and held at the Natural History Museum of Utah. Set at the edge of campus in the foothills of the Wasatch Mountains, the museum's new 163,000-square-foot Rio Tinto Center opened in November 2014 and contains 1.3 million items.

The museum's anthropology collection consists of objects recovered from 3,800 archaeological sites and boasts the largest known example of a Navajo pitch basket. Its archaeological collection includes artifacts from some of North America's most significant dry cave sites—Danger, Hogup, Cowboy, and Promontory. The ethnographic collection represents each of Utah's Native American groups—Goshute, Navajo, Paiute, Shoshone and Ute—and is home to a spectacular modern Navajo basketry collection. The museum's world-class vertebrate fossils were recovered largely from Utah and surrounding states with numerous examples coming from the Cleveland-Lloyd Dinosaur Quarry. We hope to tour the museum's state-of-the-art storage facility that was realized, in part, with the generous support of a Save America's Treasures grant.

While you are making plans, please take time to consider the state's scenic beauty. Utah includes five national parks that are less crowded and more intimate after Labor Day. Highlights include sunrise over Canyonlands, sunset in Arches, a glimpse of the Milky Way over Capitol Reef, coral-colored hoodoos in Bryce Canyon, and the renowned slot canyons of Zion National Park.

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President's letter, continued

Southeastern Utah is also a treasure-trove of rare Barrier Canyon style rock art in and around the San Rafael Swell. Distinctive pictograph (painted) panels believed to be between 1500 and 4000 years old include Buckhorn Wash, Horseshoe Canyon, Courthouse Wash, and the remarkable Sego Canyon. And while you are here, don't forget to pay homage to the newly designated Bears Ears National Monument that President Obama recently called a "remarkable national treasure." East of Grand Staircase-Escalante National Monument and south of Canyonlands National Park, these preserved 1.9 million acres of ancestral land represent a collaborative victory for Tribal and conservation groups. It has its detractors, however. Utah Republican Senator Mike Lee called the National Monument the "arrogant act by a lame-duck president" and says he intends to "work tirelessly . . . to . . . undo" the designation. Plan to see it anyway, it is wonderful.

WAAC's annual meeting in Utah promises to be memorable. Please let me know if you'd like to present a paper, and plan to join your colleagues for a great time this September. Insert yourself into the frame—this is one meeting you don't want to miss.

With warmest regards,
Randy Silverman

Regional News

Mark MacKenzie
column editor

Alaska

Ellen Carrlee is learning how to integrate conservation documentation into the new ARGUS database, designing a project to image and manage the museum's herbarium, and helping commission the new paper conservation lab. Upcoming projects include helping protect collections while a mezzanine is installed in the vault, and beginning stages of planning a cross-border regalia conference with Yukon conservator **Valery Monahan.**

Scott Carrlee helped write a grant and is coordinating a project to bring paper conservator **Seth Irwin** back to Alaska. Seth spent most of 2010 in Alaska working on grant funded projects at many small museums around the state. This time Seth will spend 3 months at the new State Library, Archives, and Museum facility in Juneau to commission the new paper conservation laboratory (the first paper lab in the state). He will help to prepare sesquicentennial documents related to the purchase of Alaska from Russia for exhibit.

Lisa Imamura continued at the Alaska State Museum in Juneau, helping Ellen Carrlee and **Paige Schmidt** reshape a humidified model *angyapik* (open skin boat). Lisa also surface cleaned model whaling accessories that accompany the *angyapik*,

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EDITOR
Carolyn Tallent

REGIONAL NEWS
Mark MacKenzie

HEALTH & SAFETY
Chris Stavroudis

ARTICLES YOU MAY HAVE MISSED
Susanne Friend

COPY EDITOR Wendy Partridge

Photocopying

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Internet

Articles and most columns from past issues of WAAC Newsletter are available on-line at the WAAC website, a part of CoOL (Conservation OnLine) http://cool.conservation-us.org/waac/.

Deadline

Contributions for the January *Newsletter* should be received by the Editor before **April 10, 2017.**

Western Association for Art Conservation

The Western Association for Art Conservation (formerly, the Western Association of Art Conservators), also known as WAAC, was founded in 1974 to bring together conservators practicing in the western United States to exchange ideas, information, and regional news, and to discuss national and international matters of common interest.

Individual Membership in WAAC costs $40 per year ($45 Canada, $50 overseas) and entitles the member to receive the WAAC Newsletter and the annual Membership Directory, attend the Annual Meeting, vote in elections, and stand for office. Institutional Membership costs $45 per year ($50 Canada, $55 overseas) and entitles the institution to receive the WAAC Newsletter and Membership Directory. For membership or subscription, contact: Denise Migdail secretary@waac-us.org

Regional News, continued

which are currently "on display" in the museum's new fishbowl-style lab.

Nicole Peters is now in private practice located in Skagway, Alaska. She is working with the Anchorage Museum on condition assessment and artifact treatment for the new Alaska Exhibit. She will also be helping out Klondike Gold Rush National Historical Park this spring with a small project involving their new gallery space and historic wallpaper.

Helen Alten received $14,000 from the Alaska Sesquicentennial Commission for an exhibit *Across the Shaman's River*. She is starting to interview elders and organize community meetings for the exhibit, which will cover 1850-1900 when the Chilkat Valley went from being protected Tlingit territory to being opened up to non-Native groups. Incorporated into the exhibit will be a new donation of a large collection of spruce root baskets by Haines weaver Mildred Sparks. The museum is considering a summer internship for conservation students to work on the new collection. This winter, museum staff are completing a collection inventory - the first since the core collection was initially acquired.

At the end of November last year, **Monica Shah** and **Sarah Owens** participated in a community workshop in Metlakatla, as part of the Materials Tradition program on weaving cedar bark. The workshop was organized by the Smithsonian Arctic Studies Center, Anchorage Museum, and the Haayk Foundation, for weavers in Metlakatla to get together for learning and teaching others, including museum staff. Weaving techniques used in Metlakatla were demonstrated and documented. Recently, Sarah traveled to Kodiak to help the Alutiiq Museum with the installation of the traveling exhibit *Living Alaska*. She also continues to prepare objects for upcoming exhibitions including *Polar Bear Garden: The Place Between Alaska and Russia.*

Conservation work continues on the objects and art selected for the Anchorage Museum's two large new exhibition projects. With almost 900 pieces to prepare, many conservators have been assisting with the project. Nicole Peters has been stationed in the visible conservation lab since early October, with assistance from **Kim Cullen Cobb** and **Michele Austin-Dennehy** in December. **Hays Shoop** and **Camilla Van Vooren**, with WCCFA, were in Anchorage in November and December to conserve paintings. Conservation technicians **Claire Sumner** and **Elissa Meyers** continue to support all of this work, while Monica Shah and Sarah Owens have been managing, continuing to plan for, and treating objects for other exhibitions.

Regional Reporter
Ellen Carrlee

Arizona

Marilen Pool has recently completed the conservation treatment of an early Edo period Japanese *Shishi-men* lion-dog mask. In the late fall she wrapped up a three year IMLS funded project with the Tucson Museum of Art. At the Arizona State Museum Marilen has recently begun a new IMLS funded program preserving the archaeological perishable collections as project conservator.

Arizona State Museum conservators and students (**Nancy Odegaard, Gina Watkinson,** Marilen Pool**, Slyler Jenkins, Betsy Burr, Leah Bright**) enjoyed visits by several conservators in January. **Amparo Rueda de Torres** (Colombia) gave a presentation about ApoyOnline and the current status of conservation activities in Central and South America. **Frank Matero** (UPenn) and his students began a 5 year cooperative project at Tumacacori National Monument with **Alex Lim** (NPS).

Ron Harvey (Tuckerbrook Conservation) began his annual maintenance for the Heard Museum and ASM with assistance from the ASM group, **Tim Lewis** (TohonoRestoration), and Tim's two Mission San Xavier apprentices **Terrence Encinas** and **Susie Moreno) Lauren Fair** (WUDPAC) visited and presented a talk on treatment of stains in ceramics.

ASM conservators and students continue to work on basketry objects selected for a new exhibit hall opening in April, the treatments for archaeological fiber artifacts in a new storage vault, and several repatriation claims. **Teresa Moreno** is on sabbatical through June 30, 2017.

The conservators in the lab at the Western Archeological and Conservation Center have been treating a large wooden map from Yellowstone National Park. Conservation technicians **Amy Molnar** and **Maria Lee** have been doing the majority of the treatment work.

Audrey Harrison and **Maggie Hill-Kipling** have been focusing on preparing collections to be rotated onto exhibit at Grand Teton National Park, including facilitating a visit with Zoma Designs mount maker **Roger Reinmann**.

Dana Senge recently traveled to White Sands National Monument to help design and create microclimates for significant fossilized tracks in the museum collection and had the pleasure of visiting Gila Cliff Dwellings National Monument for the first time to survey collections on exhibit.

Regional Reporter
Dana Senge

Hawaii

The University of Hawaii at Manoa's Hamilton Library Preservation Department is pleased to announce that **Kazuko Hioki** began her new appointment as department head on January 5, 2017. Kazuko was selected following a national search to replace former department head **Lynn Davis**, who retired in August 2015. Kazuko studied Pesticide Chemistry at Kobe University in Japan and worked for the Sumitomo Chemical Company, before relocating to the United States and earning an M.I.L.S with the Certificate of Advanced Study in Conservation from the University of Texas at Austin. She worked as conservation librarian and also as Asian Studies liaison librarian at the University of Kentucky (UK) Libraries for 12 years. Prior to her UK position, she worked as an assistant conservator at the New York Public Library and a preventive conservation fellow at the Library of Congress.

The Honolulu Museum of Art, presented their newly reorganized Islamic Galleries at the beginning of October, capping off a push by the conservation staff at Doris Duke's Shangri La to treat the exhibition objects, many which have not been on display before.

In late October, **Kent Severson** presented "Saving Islamic Art from Paradise," a short talk about conservation at Shangri La, at a symposium at Rough Point, Newport, Rhode Island. From there he traveled on to Iraq to serve as a visiting instructor at the Iraqi Institute for the Conservation of Antiquities and Heritage, working alongside colleagues **Rae Beaubien** and **Jessica Johnson**, training Iraqi museum personnel in conservation of ceramics. Back in Honolulu at the end of November, reorganization of storage at Shangri La continued to occupy much of the team's efforts.

Regional Reporter
D. Thor Minnick

Los Angeles

Chris Stavroudis presented MCP workshops at: Stanford University hosted by BAACG and the Stanford Engineering Department in June; at the Smithsonian American Art Museum (SAAM), sponsored by SAAM and WAAC and assisted by **Nina Roth-Wells** in September; and at the Institut National du Patrimoine in Paris in November. He co-presented at the 7th CAPS workshop, sponsored by GCI, with **Tom Learner** (GCI) and **Bronwyn Ormsby** (TATE) at the Ringling Museum in Sarasota, Florida, in July. And he co-presented the first of (at least) two workshops on conductivity, sponsored by FAIC with co-instructors **Daria Keynan** and **Amy Hughes** again at SAAM in December.

Chris reports that the next version of the Modular Cleaning Program software (a FileMaker Pro database) should be ready in the next week or two. (He's been saying it will be a week or two for at least the last 6 months.) **Steven Prins** has been helping with FileMaker tweaks and interface design for the newest version of the MCP. Expect great things...

The newest version of Chris' conservation studio database is finished and awaiting feedback from a few beta testers. Should it pass muster, it will be released (again) to the larger conservation community. As with the MCP, the program is provided to conservators for free and is not supported by Chris.

Elizabeth Shaeffer left her position as Andrew W. Mellon fellow in Textile Conservation at LACMA, and in December began as associate conservator at the George Washington University Museum and the Textile Museum in Washington, D.C.

LACMA's conservation research staff has been busy spreading the word on results of their research projects. Conservation scientist **Charlotte Eng** posted a blog on LACMA's Unframed site, "Beyond Layers: 3D Printed Jewelry," describing some analytical results of jewelry on view in the Lois Boardman collection. Research Mellon fellow **Laura Maccarelli** gave a paper on analysis of red dyes in pre-Colombian textiles from Peru at the 35th Annual Meeting of Dyes in History and Archaeology in Pisa.

Charlotte is coauthor of a paper (along with associate paper conservator **Erin Jue**

Regional News, continued

and associate prints and drawings curator **Naoko Takahatake**) in *JAIC*, "The Examination and Conservation of a Chiaroscuro Woodcut: Antonio da Trento's Martyrdom of Two Saints, a Case Study."

Last December paintings Mellon fellow **Miranda Dunn** was featured on LACMA's Facebook page in an interview describing her restoration of a 15th-c. Spanish panel by a follower of Andrès Marzal de Sas, *Saint Michael Fighting the Dragon*. The interview was also posted on LACMA's blog page Unframed.

In January, LACMA head of paintings conservation **Joe Fronek, Virginia Rasmussen,** head of modern art **Stephanie Barron,** and assistant curator **Lauren Bergman** held a study day in the exhibition *John McLaughlin Paintings: Total Abstraction.* A small group of conservators, scientists, and art historians familiar with the artist's paintings met in the exhibition to discuss McLaughlin's paintings and the issues of appearance and change. The artist's intentions, his materials and techniques, and treatment of the edges of the paintings were considered.

At the Natural History Museum of Los Angeles County, **Tania Collas** completed the treatment of a neon sign from the historic Esperanza Bakery to prepare it for display in the upcoming exhibition *Many Voices, One Nation* at the Smithsonian's National Museum of American History.

Marina Gibbons worked with contract textile conservator **Cara Varnell** on the treatment of an elaborately beaded velvet gown with ermine trim worn by actress Ann-Margret to the 1965 Academy Awards Ceremony. The gown will be on temporary display in the museum's *Becoming Los Angeles* exhibition in time for the Oscars in February, 2017.

Brian Considine has retired after 35 years as the head of Decorative Arts and Sculpture Conservation at the J. Paul Getty Museum. The department recently welcomed graduate intern **Madeline Corona**, a third-year at the Winterthur/ University of Delaware Program in Art

Obituary

Frank D. Preusser (1944 – 2017)

It is with great sadness that we announce the death of Dr. Frank D. Preusser, Andrew W. Mellon Senior Conservation Scientist, in the Conservation Center at the Los Angeles County Museum of Art (LACMA). Dr. Preusser devoted his life to the preservation of cultural materials and is widely recognized as one of the preeminent figures in the field of conservation science. He joined LACMA in 2005 at a time when the Center was undergoing significant changes and his efforts were instrumental in revitalizing the Center's scientific program. In addition to providing scientific support to the museum's conservators and curatorial staff, Frank was the lead scientist and project manager for LACMA's efforts to conserve Watts Towers – a complex set of interconnected sculptural structures located within the Simon Rodia State Historic Park in Watts, California.

Dr. Preusser received his BS (1967) and MS (1969) in chemistry from the Technical University Munich, Germany and in 1973 his PhD (summa cum laude) in physical chemistry and chemical technology. Soon thereafter he accepted a position at the Doerner Institute, the research center of the Bavarian State Art Collections where he served as Head of the Research Laboratory for over ten years working closely with one of the world's leading paintings conservators, the late Hubert von Sonnenburg. As the only museum scientist on staff he was responsible for the technical examination of the collections as well as assisting the State's Historic Monument Protection Agency. He also played an active role in the design of the Neue Pinakothek Munich to ensure the proper display and storage of the works of art.

In 1983 Dr. Preusser was appointed Head of the Laboratory at the J. Paul Getty Museum and later served in multiple positions at the Getty Conservation Institute including Program Director (Scientific Research), Acting Co-Director, Head of Publications, and Associate Director (Programs). As Program Director for Scientific Research Dr. Preusser developed a wide range of new initiatives that set the stage for some of the most important advances in the field of conservation science. During his tenure at GCI, rather than poaching research staff from other institutions, Dr. Preusser purposefully recruited young up-and-coming professionals with various scientific backgrounds and set them off on the challenge of applying their expertise to cultural heritage preservation. Many of them continue his drive to advance scientific progress in the field of conservation.

During his tenure at GCI he also served on numerous advisory committees for the preservation of cultural materials – most notably UNESCO's Advisory Committee to the Egyptian Antiquities Organization on the Preservation of the Giza Plateau; UNESCO's International Consultative Committee for the Preservation of Moenjodaro in Pakistan; UNESCO's International Committee on Training Needs in Cambodia; UNESCO's Advisory Committee on the Preservation of the Monuments of Angkor, Cambodia; and the US National Acid Precipitation Assessment Program.

After leaving the Getty Conservation Institute in 1993, he founded Frank Preusser & Associates where he continued to work in cultural heritage preservation projects for museums, libraries, and archives as well as scientific investigations of individual artworks. During this time he was also a guest-professor at the Tokyo National University of Fine Arts and Music (Tokyo Geijutsu Daigaku) where he taught several graduate courses in conservation science including an introduction to instrumental analysis, archaeometry, and accelerated aging.

While Dr. Preusser's knowledge of the field of art conservation was without parallel, for those of us who had the honor of working with him he will always be remembered for his devotion and support he gave his staff and colleagues. He loved teaching and guiding his staff and interns to reach their goals and become successful professionals. Many of us today owe our professional careers to his mentorship for which we are truly grateful. Dr. Preusser is survived by his wife Margarete, his two sons Wolfgang and Bernhard, his daughters-in-law Melinda and Susan, and his grandchildren Adrianna and Devin.

Mark Gilberg and Charlotte Eng

Conservation, who will be treating an 18th-century fluorspar vase and working with **Arlen Heginbotham** on a research project involving the identification of ebony wood species through chemical analysis. They also welcomed **BJ Farrar**, who is working with **Mark Mitton** on the use of 3D scanning for mount making, starting with the upcoming exhibition *Bouchardon: Royal Artist of the Enlightenment*.

Pre-program conservation assistant **Magdalena Solano** is concentrating on the Fran and Ray Stark Collection of outdoor sculpture. Last year's graduate Intern, **Kellie Boss**, is currently working one day a week on the re-waxing of their outdoor bronzes.

Julie Wolfe was on a panel at the 26th International Sculpture Conference in Pittsburg last October called Conserving Our Past: Renewing Historic Outdoor Sculpture, moderated by Teresa Duff. She has been removing 20-yr old Incralac coatings from the outdoor bronzes in the collection and has done some coating studies to compare Incralac with laboratory-made imitations using less toxic solvents.

Regional Reporter
Virginia Rasmussen

New Mexico

An IMLS-funded, multi-year project to address the conservation needs of the archaeological pottery collections at the Museum of Indian Arts and Culture is nearing completion. Project conservator, **Landis Smith**, has engaged Pueblo potters, archaeologists, curators, and cultural leaders in conservation documentation and decision- making. Over 265 pots have been stabilized, employing a variety of treatment methods, including external stabilization.

Third-year intern from Buffalo State**, Sophie Hunter**, has recently been working on a major treatment of a bronze painted wooden shrine for the upcoming exhibit *No Idle Hands: The Makers and Myths of Tramp Art*. The project has included many exciting elements, such as reverse glass painting, wood and plaster repairs, and re-creating delicate paper flowers using Japanese tissue paper. This is an exhibit for the Museum of International Folk Art.

Larry Humetewa, **Angela Duckwall,** and **Maureen Russell** continue to conserve nearly 200 pairs of moccasins for an upcoming exhibit at the Museum of Indian Art and Culture.

It is with sad hearts and long faces that Museums of New Mexico – Conservation announce that long time conservator **Mina Thompson** will be leaving the lab in February to spend more time with her fortunate family.

And finally, **Mark MacKenzie** continues with the multi-spectral imaging of the monumental Segesser Hide Paintings. These are early 18th-century architectural murals on animal hide which must be imaged flat. The MSI equipment has been married with a purpose built CNC traveling gantry table with a clear span of 6 x 8 feet to handle the nearly 18 feet long paintings.

Regional Reporter
Silvia Marinas-Feliner

Pacific Northwest

The Seattle Art Museum welcomed **Dorothy Cheng** as a contract conservator assisting **Geneva Griswold** in surveying SAM's historic objects collection through this spring, in anticipation of the storage move at the Seattle Asian Art Museum.

In other continuing preparations for the move, **Peter Malarkey** and conservation intern **Jennifer Myers** resumed the survey of the paintings at the SAAM from this past summer. **Marta Pinto-Llorca** and **Nicholas Dorman** continue to work on art move logistics and storage upgrades for the renovation project.

Under the auspices of the Mellon Foundation planning grant, the second Conservation Convening took place this past November, and was graciously hosted by the Asian Art Museum of San Francisco. **Nick Dorman** and **Tami Lasseter Clare** presented their updates on their work related to the initiative in planning to establish a regional conservation studio for Asian paintings at the SAM. Continuing in the Mellon-funded series of surveys of the SAM's Japanese paintings collection, **Tomokatsu Kawazu** and **Lisa Duncan** completed the fifth survey session in late fall.

Nick presented "The conserving of a monumental Korean painting on view at SAM in 2005" and participated in the work sessions at the "Preserving Oversize Asian Paintings" symposium at the Museum of Fine Arts, Boston in December. **Corine Landrieu** and **Dorothy Cheng** collaborated with SAM conservation and museum services staff in de-installing the recent exhibition *Yves Saint Laurent: The Perfection of Style* this January.

Corine is also also working on objects for MoPOP, for the upcoming *Hall of Fame* exhibition.

At the Portland Art Museum, there has been significant progress creating a functioning conservation treatment/lab space at the museum proper, making it possible for **Samantha Springer** to include some bench work into the rest of her activities. The conservation department received a generous gift from **Peter Meijer** and the Heritage Conservation Group towards the purchase of a new Leica microscope and camera which will be setup in the next month.

Samantha has been working on: preparing outgoing loans, collaborating with the education department to create verbal description and touch tours for people who are blind and have low vision, organizing an inter-departmental working group for new media works of art, and developing content for conservation talks associated with the *Ghissi Altarpiece Reunification* exhibition.

She has enjoyed the opportunity to collaborate with other conservators in the area on treatments for the museum and looks forward to many more.

Sydney Schaffer continues to volunteer as a pre-program intern in the lab, moving from digitizing and organizing files to carrying out some minor treatments. The department congratulates **Lianne Uesato** on getting the objects conservator position at the Corning Museum of Glass, although her part-time assistance will be greatly missed.

PAM recently announced a capital campaign for a renovation that would increase gallery spaces and improve overall unity of the institution by joining the original Belluschi building with the Mark building. Any advice on preparations for the pre-construction phase of building projects is invited and greatly appreciated.

A short story by **Miriam Clavir** was published this past November in *The Whole She-Bang 3*, an anthology of murder, mystery, and crime stories from a Canadian chapter of Sisters in Crime. *Disaster Planning* is set in a museum on the day of its annual emergency contingency drill. The real emergency for Gena, the collections manager in charge of the drill, comes early when she discovers the corpse of her most-disliked co-worker, and she is suspected of murdering him. *The Whole She-Bang 3* is available as a Trade Paperback or e-vailable for most e-reader formats: Amazon.ca, Kobo, and Smashwords.

Jamie Hascall spent 11 weeks working with the Alaska State Museum, first training their exhibit department in mount making methods, and then continuing as mentor and contract mount maker culminating in the opening of the new SLAM (State Library, Archives, and Museum) in June 2016. He has established Mountmaking Focus Studio in Seattle as a center for mount making, training, and consulting. His first two-day workshop in "Introductory Mountmaking" is scheduled for March 30-31st 2017.

2016 has been a hallmark year for Art and Antiquities Conservation, LLC. Besides completing a challenging project for Seattle Art Museum, **Linda Roundhill** has been honing her ladder-clinging skills among numerous outdoor sculptures. In addition, she completed the treatment of a large concrete water feature by Alice Aycock for Western Washington University, as well as several contracts with Northwest Coast Tribes.

Correction: the September *Newsletter* had a bit of a mix up with the Royal BC Museum submission to the "Regional News." They were listed under the Pacific Northwest, but integrated with the Seattle Art Museum submission. All references to the RBCM were changed to SAM in error. (*My apologies for this mistake. The news was correct as submitted, the errors occurred somewhere during layout and editing. Ed.)* Below is the correct submission for last quarter:

Exhibitions continue to drive the work of the Royal BC Museum conservation department. The public conservation exhibit on fire recovery at the U'Mista Cultural Centre has been a resounding success, mainly through the efforts of **George Field**.

Also assisting on that project were **Lisa Bengston** and contract conservator **Rachel Stark**. Unfortunately the RBC MCD said good-bye to Rachel so that she could pursue another opportunity at a shipwreck site in Sicily. Congratulations Rachel!

The conservation department was extremely happy that **Lisa Imamura** joined us from the Queen's University art conservation program over the summer to assist with the rest of that project. Also on board now is **Valeria Carrillo** from Mexico City's Escuela Nacional de Conservación, Restauracion, y Museografía. Valeria has undertaken the last of the conservation work on the U'Mista artifacts, as well as helped to prepare objects for next year's *Families* exhibition.

Tara Grant travelled to Victoria to spend time with **Kjerstin Mackie**, setting up wet archaeological basketry treatments. We are indebted to Tara and to the Canadian Conservation Institute for their assistance on this project.

Kasey Lee is working with **Heidi Swierenga** from the University of British Columbia's Museum of Anthropology and **Elisabeth Czerwinski** from Burnaby Village Museum to develop a regional emergency response network based on a proposal submitted by Heidi to the Federal Government. That work is now supported by a Museums Assistance Program grant and will involve a disaster recovery workshop later in the fall.

Colleen Wilson and **Betty Walsh** are heavily into artifact condition assessments of textiles and archival materials for the *Families* exhibit next spring.

Regional Reporter
Corine Landrieu

Rocky Mountain Region

Victoria Montana Ryan again taught the NSCC museum classes online course Care of Paintings. She gave a one week workshop on the care of paintings at the International Preservation Studies Center and held one-day workshops in Denver (for AASLH) and in Taos, NM (for Oklahoma State University students). Victoria continues to be a guest lecturer for the "Science of Paintings" course at Colorado College, and she is also currently serving as the chair for AIC's nominating committee.

Julie Parker received her Professional Associate status from the American Institute of Conservation over the summer, and is currently working on projects at both the Denver Art Museum and the Denver Museum of Nature and Science.

Hays Shoop worked on paintings at the Anchorage Museum which had been surveyed for treatment by **Camilla Van Vooren** last June. Camilla returned to work for another week in December. Camilla is completing treatment on several paintings from the Utah Museum of Fine Art including a large Baroque work by Francesco Solimena. Hays has recently completed two treatments of

paintings by Colorado regional painter Charles Partridge Adams.

Beth Heller completed a condition survey and conservation work for Colorado State University's new acquisition, The Hartford-Tandstad Collection, for their upcoming exhibit of 17th and 18th-century drawings, and is about to begin work on a group of 80 John Gould hummingbird prints for the National Museum of Wildlife Art's exhibit - *Just in Time for Spring*.

Conservation Solutions Inc. is pleased to announce the appointment of **Terry M. Saeger** as chief executive officer for the CSI group of companies, and the opening of our Telluride, CO and Newport, RI offices to better support our existing client base and our North American expansion initiative.

Conservation Solutions' current projects include the treatment of a silk banner in the Yukon; assessment and treatment of the Carnegie Library in Washington, DC; laser cleaning of exterior masonry and bronze elements at several iconic buildings in Washington, DC; treatment of a 20' tall zinc Fiske fountain for a California collector; treatment of lanterns and terra cotta elements at Ca D'Zan in Sarasota, FL; and the treatment of 5 copper sheet sculptures from an Iowa County Courthouse. New project awards include the exterior restoration of the Russell Senate building in Washington, DC and the assessment & treatment of two nickel and bronze statues for the Museum of the City of New York.

Several recent projects have received awards including the Award of Merit – Restoration from the City of Ottawa for work on the Supreme Court of Canada bronze exterior elements restoration project. The Award of Excellence – Conservation: Architecture was awarded to the rehabilitation and restoration of the Wellington Building Ottawa, and CSI project team members received NASA's Group Achievement Award for the "Forever Remembered Project" dedicated to honoring fallen heroes of the Challenger and Columbia tragedies.

Joseph Sembrat, senior conservator & AIC Fellow will be presenting "The Conservation of Industrial Archeology and its Role in Preserving the History of the American West" at APT Rocky Mountain Conference on March 23-25, 2017 in Salt Lake City, Utah. **Mark Rabinowitz**, senior conservator and AIC Fellow & **Elizabeth Beesley**, conservator & PA, will be presenting "Solid CO2 cleaning and patina preservation: case studies in aluminum and bronze" at AIC's annual meeting in Chicago.

Regional Reporter
Julie Parker

San Diego

Sabrina Carli of Carli Fine Art Conservation is collaborating with the Calder Foundation and La Paloma Fine Arts in the conservation of *Oscar*, an iconic large-scale Alexander Calder stabile/mobile. CFAC will be active in Palm Springs during Modernism Week (Feb. 16-26) during which Sabrina will be consulting with collectors and institutions as well as participating in panel discussions at Art Palm Springs.

Steve Johnson has recently relocated to Southern California from New York City, where he worked as a conservator/restorer for thirty years. He was a member of the conservation team at Tatti Art Conservation, and the site conservator for outdoor sculpture at the Storm King Art Center. In addition to his skills as a conservator, Steve is also an experienced mount maker and installation technician. His contact information is: email: magnetosteve@earthlink.net

Julie McInnis arrived in San Diego late last year after eight years in Washington, DC, as a special collections technician in the Conservation Division at the Library of Congress. At the library, she had the privilege of working with a wide array of special papers, books, and objects. Duties spanned basic conservation treatments to very elaborate custom housings and exhibitions preparation. As a European history student at the University of San Francisco, her summers were spent working at the Golden Gate National Recreation Area Presidio Archives, where she started as a volunteer, updating retrieval processes, digitizing finding aids, and even retrofitting non-structural furniture and collection storage for earthquake safety. After taking some time off to travel to Australia, New Zealand, Japan, and Hawaii with her fiancé, Tim, Julie is happy to be back on the West Coast and is currently looking for the next exciting opportunity. When she's not working to preserve collections, she's either baking, traveling, or thinking about baking and traveling.

Regional Reporter
Frances Prichett

San Francisco Bay Area

The paper lab at the Fine Arts Museums of San Francisco is pleased to have its second two-year Andrew W. Mellon fellow, **Anisha Gupta**. Anisha is not new to the Museums; she was recently a 3rd year graduate intern in the FAMSF paper lab.

Heida Shoemaker participated in the Identification and Preservation of Digital Prints workshop in Rochester, NY in Oct., 2016. The workshop was organized and hosted by the Image Permanence Institute, which is located on the RIT campus. The primary instructors were **Daniel Burge** and **Douglas Nishimura**. The 15 participants came from a wide variety of places, from Northern Canada to Mexico to Germany to Hawaii and spanned a wide range of expertise and professions.

Texas

Allison Rosenthal came to the Amon Carter Museum for the month of August to gain experience in the paper conservation lab with **Jodie Utter**, conservator of works on paper. She helped with the treatment of prints for the upcoming exhibition *Invented Worlds of Valton*

Tyler, as well as preparing the Stuart and Scott Gentling archives for inclusion into the museum collection. While in the lab she practiced surface cleaning, tear repair, structural reinforcement, and tape removal. In addition to her work in the conservation lab she also spent time in the museum's archives researching the recently catalogued Roman Bronze Works Company archives. Her research helped add to the body of knowledge about the company, their clients, and most importantly their technical practices.

This fall, **Stacey Kelly**, paper conservation fellow, received the Midwest Regional Conservation Guild emerging professional scholarship and presented at the meeting in Cooperstown, New York, on the characterization of aniline dyes in the prints of Jose Posada. Jodie presented a talk dealing with a major silverfish outbreak: the challenges and lessons learned from the experience.

Regional Reporter
Ken Grant

People keep working in a freelance world, and more and more of today's world is freelance,

because their work is good, and because they are easy to get along with, and because they deliver the work on time.

And you don't even need all three.
Two out of three is fine.

People will tolerate how unpleasant you are if your work is good and you deliver it on time.

They'll forgive the lateness of the work if it's good, and if they like you.

And you don't have to be as good as the others if you're on time and it's always a pleasure to hear from you.

Neil Gaiman

Jobs

City of Los Angeles
Department of Cultural Affairs (DCA)
Request for Qualifications (RFQ) for Profesional Art Conservators
Deadline: March 3, 2017 AT 11:59 PM

The City of Los Angeles, Department of Cultural Affairs (DCA) is responsible for the conservation, maintenance, and management of art and cultural assets acquired through its various programs. The City Art Collection contains more than 1,600 artworks--permanently sited and mobile. The collection includes murals, paintings, prints, sculpture; furniture, historical materials, ethnographic artifacts, architectural elements such as stained glass or cast stone emblems; works on paper, and photographs.

The Request for Qualifications (RFQ) will enable DCA to create a Pre-Qualified list of up to twenty (20) conservators (including teams and/or firms) who demonstrate the professional capacity to advise on the maintenance of artworks, artifacts, and architectural elements, as well as conserve, examine, and provide preventative care treatments and recommendations for artworks.

Criteria
Experienced conservators, teams or firms must demonstrate the vision, past experience and professional qualifications required to assess artwork; prepare treatment reports; clean artwork; and advise on the procedures on the conservation and maintenance of artworks and architectural enhancements as well as perform the outlined scope of services. Additionally, examples of past work should conform to standards established by the American Institute of Conservation of Historic and Artistic Works as well as the United States Department of the Interior's Standards for the Treatment of Historic Properties. Conservators who apply as a team must demonstrate both the qualifications of individual team members, as well as the team's qualifications to work together on projects.

Categories
The Pre-Qualified list will be active for three (3) years, with the option to renew the list for an additional three (3) years. Selection will be based on demonstration of professional experience, strength of past work, experience, training, comprehensiveness of example proposal--research, presentation, and the appropriateness and professionalism of the condition assessment, treatment proposal, budget and timeline. Conservators will be evaluated based on each of their stated area(s) of specialization as shown below, and are not expected to exhibit expertise in all possible mediums.

- Sculpture/objects/furniture
- Wall murals/easel paintings
- Mosaics/ceramics/concrete
- Photography/works on paper
- Leaded art glass windows
- Electronic/digital media

Once selected to the Pre-Qualified pool, conservators, teams and firms on the list will be invited to bid on specific conservation projects as opportunities arise. In addition, Pre-Qualified conservators may be asked to serve in an advisory role on DCA's Public Art Committee, which convenes monthly to review new artwork donations and Public Art projects.

Eligitability
This RFQ is open to applicants residing in the Southern California area, including the counties of Los Angeles, Riverside, San Bernardino, San Diego, and Ventura. Conservators may apply individually, as a team, or as part of a firm. Conservator teams may not change without prior approval of the Department of Cultural Affairs. Employees of the City of Los Angeles are ineligible to apply.

Project Budgets
Project budgets will range from $1,000 to $200,000. Each budget will be all-inclusive, and must cover all expenses associated with the proposal development and the project execution, to clean, conserve and/or advise on the maintenance, as well as any required presentations, approvals, engineering services and/or City permits.

A full description of the RFQ including information about the Selection Process and Application Materials can be found online at: culturela.org/grants-and-calls. Or contact Rochele Gomez, Arts Manager at Rochele.gomez@lacity.org or call DCA's Public Art Division at 213 202-5544.

Membership

Chris Stavroudis, membership secretary

WAAC Publications

Handling Guide for Anthropology Collections

Straightforward text is paired with humorous illustrations in 41 pages of "do's and don'ts" of collection handling. A Guide to Handling Anthropological Museum Collections was written by Arizona State Museum conservator Nancy Odegaard and illustrated by conservation technician Grace Katterman. This manual was designed to be used by researchers, docents, volunteers, visitors, students, staff or others who have not received formal training in the handling of museum artifacts. Paperbound and printed on acid-free stock.

Price: $10.00

($8.00 copy for orders >10 copies)

Back Issues of WAAC Newsletter

Back numbers of the *Newsletter* are available. Issues Vol.1 - Vol.14, #3 (Sept. 1992) are $5/copy. Issues Vol.15 - Vol.29, #3 (Sept. 1997) are $10/copy. Issues Vol.30 (Jan. 2008) and after are $15/copy. A 20% discount will be given to libraries seeking to obtain back issues to complete a "run" and for purchases of ten copies or more of an issue.

Prices include shipping and handling. Make checks payable to WAAC drawn in US dollars on a US bank.

For information please contact the WAAC Secretary:

Denise Migdail

Send prepaid orders to:

Donna Williams
WAAC Fulfillments

(Membership continued P. 32)

A Shortage of Agar: the Sustainability of a Common Conservation Material

On a recent visit to Nora Lockshin, senior conservator at the Smithsonian Institution Archive, she brought to our attention the current shortage of agar. During our conversation on the subject of options for aqueous gel systems for localised stain removal, I was made aware that working properties, material stability, and toxicity should not be the only factors that inform the choice of conservation materials. A greater understanding of the degree of exploitation of a natural resource and its potential environmental impact should also come into the equation.

This news also came as a surprise to me on a more personal level, as I was brought up in the area where agar was traditionally found in such abundance: Japan's Izu peninsula. The area is known as the largest harvester of the seaweed *Gelidium*, the raw material for agar. One of my earliest memories is of my grandmother wandering to the seashore, and returning home with handful of the seaweed to make jelly for me each day.

Agar, or *agar-agar*, is derived from polysaccharide extracted from certain types of seaweed such as *Gelidium*, *Pterocladia,* and *Gracilaria*. The resulting jelly-like substance is widely used in the food industry as a gelling and thickening agent, as well as in microbiology as a growth medium for micro-organisms in petri dishes.

In conservation, it has been used as a very effective aqueous rigid gel for surface cleaning and stain removal. Its effective property of capillary action, combined with its availability, ease of preparation, PH neutrality, and lack of toxicity has made it a highly promising and desirable material. However, how this material is sourced is scarcely discussed within our community. even if the impact of the shortage has become a cause for concern among other sectors. The raw material is largely harvested in its natural, rather than cultivated, habitat, using labour intensive methods with little automation, but the industry's steadily declining yields demand our attention.

In October 2015 it was reported that Thermo Fisher Scientific had suspended its sales of several agar products used for culturing bacteria and fungi. The company cited low yields, more restrictive quotas for trade and the varying qualities of harvested raw material as the reason for their action (MacDonald, 2015). According to an article from *Nature* on the subject, Millipore Sigma is another lab materials supplier who suspended their supply of agar, attributing the cause of the global shortage to over-harvesting and the increased use of the material in the food industry.

The rationing and rising price of this important reagent naturally raised concerns regarding the future availability of the material, which will no doubt impact on such fields as medical and micro-biological research. The article also suggested that, on top of the global decline of harvests, trade restrictions imposed after the decline of yields in Morocco, the world's major harvester of the seaweed, has crucially affected the situation. The world's agar supply appears very reliant on this specific region. This means that the yields from other regions, whose seaweed harvests are also in decline, could not meet the increasing demand worldwide (Callaway, 2015).

Historically there have been attempts to cultivate and farm the *Gelidium*. Although it is not impossible to cultivate in a controlled environment, past experiments indicated that it is not economically viable (McHugh, 2003). *Gracilaria*, conversely, has been successfully cultivated in countries such as Chile. However, because of the difference in its properties from *Gelidium*, *Gracilaria* cannot be used for bacteriological agar. Moreover, the industrial-scale farming of *Gracilaria* requires a significant modification to sea beds which may affect other natural habitats (Santelices, 2014).

Inspired to investigate the issue further, I recently visited the Izu Branch of the Shizuoka Prefectural Research Institute of Fishery to speak to Masatoshi Hasegawa, research manager, and Koji Takagi, senior researcher, who conduct the annual population studies of the *Gelidium* seaweed and assess the production of agar in the region. The institute was originally founded in 1957 with a specific research focus on *Gelidium* habitats in the region.

In the Izu peninsula, the situation of the declining seaweed population presents a slightly different picture, not merely attributable to over-harvesting or trade restriction. There the problem is understood as a wider issue, both socio-economic as well as environmental, about how humans engage and sustainably maintain the natural resources.

Since the mid-1960s, following the economic boom in post-war Japan, the region found a flourishing new market in tourism, exploiting its natural resources, such as the volcanic hot springs, beaches and plentiful fresh fish. Many of the local population who had worked in the fisheries, including those harvesting and processing *Gelidium* and *Pterocladia*, collectively called tengusa in Japanese, switched their occupations to the more lucrative hospitality and tourism.

Consequently this reduced activity had an adverse effect on the rocky beds where the seaweed was harvested. If not regularly maintained their habitat can be easily overtaken by other types of seaweed that are more competitive than tengusa in the ecological system. Traditional harvesting of the seaweed left the roots to encourage the growth of new shoots and undesirable seaweeds were weeded out , to prevent *Gelidium* and *Pterocladia* from being overtaken (Tengusa Fishery in Izu Compilation Committee, 1998, pp.72-74, 85-87).

The shift in the area's local economy resulted in the decline of *tengusa* harvesters and processors, and thereby the maintenance of the habitats. Currently the Research Institute is attempting to encourage and recover the *tengusa* population. The habitat has been regularly monitored and growth has been encouraged by weeding other species from rock sea beds by divers. However, they have found that it is a challenge to restore the same degree of seaweed population once it has been taken over.

Similarly, restoring the number of harvesters and processors has posed a challenge in the region. The harvesting and processing of the seaweed remains a labour intensive process, few stages of which have been mechanised or automated to date. Because of the nature of the environment that *Gelidium* and *Pterocladia* prefer to inhabit, harvesting is largely carried out by divers picking them up from the surface of the rocks by hand. It is also common to collect those beached ashore naturally, albeit these yields are perhaps even lower. Historically in Izu, female free-divers, or *Ama*, have taken a major role in this.

After sun-bleaching the seaweed, there is another arduous, non-mechanised stage of painstakingly removing the non-*tengusa* seaweed as well as other impurities, such as barnacles, from the entangled bunches of *tengusa* seaweed. The sheer intensity of this labour, coupled with its small monetary return, make the agar industry economically unsustainable and hence unattractive to the younger generation. Consequently, people who engage with the agar industry in the region are ageing and increasingly scarce (Tengusa Fishery in Izu Compilation Committee, 1998, p.75-76).

In conclusion, the conservation community is becoming more aware of the environmental impact of our practice and of what we can do as a profession to encourage its sustainability. However, investigation into the current agar shortage has made me realise that we are probably not talking enough about how our materials are produced and what the environmental and human costs are.

Studies and experiments into the use of agar rigid gel in conservation have been very promising and I am one of many conservators who would like to pursue these techniques further. Indeed, it is tempting, because of its ease of preparation and use, to make agar gel one's go-to material for many things aqueous, from stain removal to poulticing. Nevertheless, it is important to be aware of other options in instances where the desired effect can be achieved using less environmentally problematic materials than agar.

Good, and sustainable, conservation practice benefits from a good understanding not only of conservation materials' specific properties, but also of the environmental and economic contexts in which they are sourced, processed and eventually arrive in the lab.

Misa Tamura is the Research Conservator for the *Situating Pacific Barkcloth Production in Time and Place* project at the Centre for Textile Conservation and Technical Art History, University of Glasgow

Acknowledgements

I would like to thank Masatoshi Hasegawa and Koji Takagi at Shizuoka Prefectural Research Institute of Fishery Izu Branch for offering a fascinating insight into the subject. My thanks also go to Nora Lockshin, senior conservator at the Smithsonian Institution Archives and Michele Austin-Dennehy, conservator at Smithsonian National Museum for Natural History for the discussion which inspired me to pursue the topic further.

References

Callaway, E. 2015. *Lab staple agar hit by seaweed shortage* [Online] [15/05/2016] Available from: www.nature.com/news/lab-staple-agar-hit-by-seaweed-shortage-1.18970

MacDonald, G. 2015. *Seaweed shortage prompts Thermo to suspend sale of two lab agars* [Online] [15/05/2016] Available from: www.in-pharmatechnologist.com/Regulatory-Safety/Seaweed-shortage-prompts-Thermo-to-suspend-sale-of-two-lab-agars

McHugh, J.D. 2003. A guide to the seaweed industry. *FAO Fisheries Technical Paper*. [Online] 441. [15/05/2016] Available from: www.fao.org/docrep/006/y4765e/y4765e00.htm

Santelices, B. 2014. Cultured Aquatic Species Information Programme. Gracilaria spp. Cultured Aquatic Species Information Programme. *FAO Fisheries and Aquaculture Department* [Online] [15/05/2016] Available from: www.fao.org/fishery/culturedspecies/Gracilaria_spp/en

Tengusa Fishery in Izu Compilation Committee (Izu no Tengusa Gyogyo) ed. 1998. *Tengusa Fishery in Izu*. Tokyo: Seizando Shoten.

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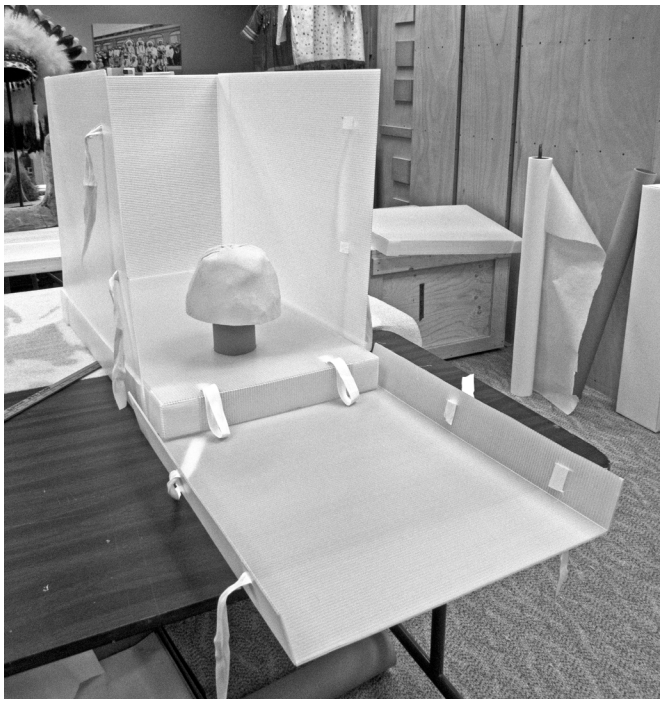
Storage and Shipping Boxes for Feather Bonnets

Eagle feather bonnets are common in Native American ethnographic collections. Because of their large size, unique design elements, and fragile nature, they can be problematic when museum storage space is limited, or when shipping and handling is necessary for treatment or for traveling exhibitions. The following article explores some storage and shipping mount solutions that have been used successfully for a variety of feather bonnet styles.

The basic storage mount and box for simple feather bonnets consists of a drop-front box made of archival board or corrugated plastic. A padded Ethafoam form to support the bonnet crown is mounted on a tube anchored to a slide-out platform.



The storage boxes are quite strong and may be easily stacked to maximize limited storage space.

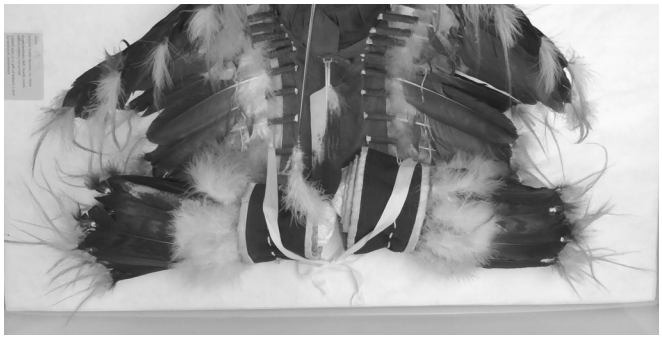
Eagle feathers around the crown are held in place with a band of unbuffered acid-free tissue tied with cotton twill tape. Compressing the circle of eagle feathers with the tissue band allows the bonnet to fit into a smaller space than would otherwise be possible when the feathers are splayed open, and prevents the feathers from shifting and moving during handling.

Feather bonnets with long fabric trailers bearing single or double rows of eagle feathers are quite common. Sometimes these trailers can be up to 8 feet long and thus can be quite difficult to store.

With careful handling, the long feathered trailers may be rolled and the roll tied to the slide-out platform just behind the crown support mount. In this example, a small Tyvek pillow was used to support the center of the roll. Care was taken to avoid direct contact between the Tyvek and the feathers.

Experience has shown that it is best not to insert any synthetic material between the layers of feathers as the trailer is rolled, as materials such as Tyvek, Ethafoam sheeting, or similar can hold an electrostatic charge that can distort or damage the feathers. When necessary, acid-free tissue may be used.

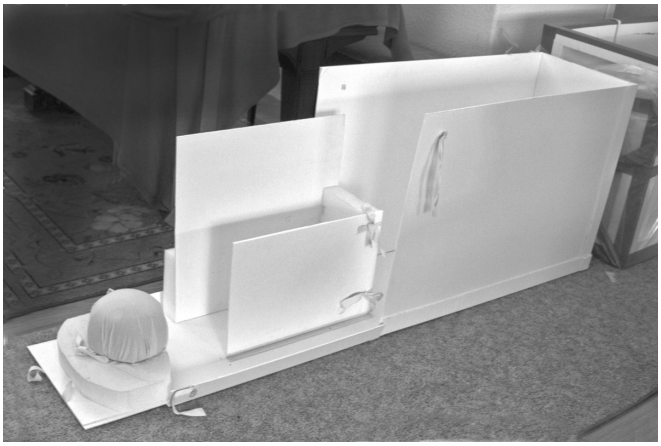
Another solution when the trailers are quite long is to roll each trailer separately and anchor them side by side.



Modifications can be made to accommodate various types of decorative elements on the bonnets.

Bundles of silk ribbon or ermine skins are often attached at the temples of the bonnet crown, designed to hang loosely at either side of the head when worn. These materials may be bundled and tied gently to the platform on either side of the crown support. Very fragile silk ribbon may be wrapped in a protective envelope of acid-free tissue, rolled gently on a small Tyvek pillow and tied in place in a similar fashion.

In the case of extremely limited storage space or to accommodate the size limitations of commercial shipping crates, the long feather trailers may also be mounted upright on the box platform.



In this example, Ethafoam interleaving was used to add structural support to the upright feather roll, with a layer of acid-free tissue to protect the feathers from direct contact with the foam.

This method was successfully used to transport an extremely fragile trailer bonnet cross-country in the hands of commercial art shippers without incident.

Cellulose Acetate Lamination: History

Introduction

Lamination adds physical strength to an object by adhering one material to another stronger material. Lamination has been, and is currently, used in paper conservation / preservation to support documents using a variety of materials and adhesive technologies. This article will focus specifically on the history of cellulose acetate (CA) lamination, applied using a combination of heat and pressure. The technique was in broad use in libraries and archives in the United States and around the world from the 1930s-1990s. In some places it continues to be used (McGath et al. 2015).

One purpose of this article is to clarify some areas of potential confusion. One such area is that the term "Barrow lamination" has been incorrectly used as a synonym for all CA lamination. Barrow lamination was, in fact, only one of the many different types of CA lamination treatments that were used.

While today, CA films and plastics are known to degrade, sometimes drastically, it would be incorrect to assert that CA lamination was both a poorly conceived and under-researched treatment.

In fact, as a treatment for documents, CA lamination was arguably the first scientifically researched preservation / conservation treatment, and underwent testing and retesting throughout the decades it was in use (Scribner 1934; Scribner 1940; Wilson & Forshee 1959; Barrow 1965). However, it is true that CA lamination was often used as both a conservation and preservation treatment simply because it was the only treatment method available to institutions.

CA lamination was first recommended as a preservation method by the National Bureau of Standards (NBS) (Scribner 1934; Barrow 1941) and then by William J. Barrow (Barrow 1939) with the idea that it would protect against mechanical damage and environmental contaminants and fluctuations as well as prevent biological deterioration.

Over the years institutions commonly sent Barrow their most important materials for preservation, regardless of the condition of those materials (Baker 1982). CA lamination was used to repair torn pages and to consolidate and protect burned pages (Bolsée 1950; Cutter 1967). It is often difficult to judge the effectiveness of this CA lamination treatment today because it was applied to deteriorating and intact paper alike.

There were two major CA lamination methods. The first CA lamination method was developed by the National Bureau of Standards, and as such we refer to it here as the NBS lamination method. The second was Barrow's lamination method, which evolved from the NBS method.

The NBS and Barrow methods both apply a combination of heat and pressure to adhere CA films to the surfaces of a document. Other CA lamination methods in use during the same time period typically involved the use of adhesives or solvent to apply CA to the document and are beyond the scope of this article (Minogue 1943; Cutter 1967).

The Barrow lamination method differs from the original NBS lamination method in three distinct ways: the deacidification of documents prior to lamination, the use of tissue paper in the lamination, and the type of laminator used to apply the cellulose acetate film to the document surface. These differences are highlighted in Table 1.

Table 1. Differences between the Barrow and NBS Lamination Methods

	Barrow Method	**NBS Method**
Deacidification or pretreatment	Two bath deacidification developed in 1940: calcium hydroxide and calcium carbonate	No deacidification was recommended until 1959
Use of outer support layer	Semi-transparent tissue layer *	No outer tissue recommneded until 1959
Type of laminator	Separate oven and roller press heat the lamination materials prior to pushing them onto the roller **	Heat and pressure applied at the same time with a hydraulic press. Temperature, pressure, and time ranged from: 150 - 175° C, 300 - 2,000 psi and 3 1/2 - 30 minutes. (Scribner 1934)

*This is often referred to as Japanese tissue in the literature, but was rarely if ever actually Japanese tissue, rather it was usually just a semi-transparent tissue paper of variable quality. The application of tissue paper was not universal, and might differ based on the type of document, the media on the document, or the state of the document.

** The time exposed to the oven and the temperature of the oven were the only elements controlled. Pressure was dependent on the thickness of the paper treated (though this could be changed with the addition of blotter or other spacer material).

The NBS Lamination Method

It should be stressed that the NBS was not trying to create a preservation method to treat all archive materials with the goal of making them last forever. Their experiments were designed to address the very urgent issue of preserving newspapers in libraries for more than a few weeks.

In 1928 the NBS (today the National Institute of Standards and Technology or NIST) and the Library of Congress began researching the application of cellulosic materials: cellophane, CA, and cellulose nitrate as strengthening agents for brittle paper (Gear 1965). They found that cellophane (reconstituted cellulose) was not robust enough to be useful as a laminating substance and cellulose nitrate damaged the paper.

In 1934 the NBS published a recommendation for the use of CA film in the lamination of newspaper. The recommendation did not promise long-term preservation, but stated that "the durability of impermanent newsprint can be greatly increased by protective coatings, but it is doubtful whether any known treatment will prevent its ultimate decay" (Scribner 1934).

The NBS used a hydraulic press which applied heat and pressure to a document simultaneously. These presses were purchased and used by a number of institutions, but were relatively expensive.

Because the hydraulic press applied pressure over the entire document, it was possible to trap air between the laminate film and the paper document. The formation of bubbles was a notable drawback of this method. However it was possible to laminate multiple sheets of paper at a single time by interleaving the laminate sandwiches with blotter papers.

With the founding of the National Archives (today the National Archives and Records Administration or NARA) in 1934, there was greater pressure on NBS to find treatment methods with wide applicability to different materials and short application times, as this new institution was flooded with materials in various conditions.

In 1936, the National Archives purchased a hydraulic press for the CA lamination of brittle documents (Gear 1965) as CA lamination was found to be the only technique that the institution could depend on on for quick and reliable treatment of myriad documents (Scribner 1940). A summary of the NBS findings is shown in Table 2.

NBS recommended testing CA films for stability because of the chemical variation of CA films produced by various manufacturers with differences in the plasticizers used and in the processing and synthesis of the CA.

An accelerated aging test of 72 hours at 100°C (Scribner 1940) was used to determine stability. If films underwent little or no change in the course of this test, they were deemed suitable for use.

Notably the tests were done in "dry air" and thus did not simulate natural aging in even moderately humid environments. This is important because water is required for the hydrolysis of CA.

When CA breaks down under environmental conditions typical of most libraries, archives and museums, it does this using water from the atmosphere, hydrolyzing acetyl groups, and releasing acetic acid, a.k.a. vinegar (McGath et al. 2015). Thus, the predictive value of these accelerated aging tests is called into question because humidity factors were not considered in the early years of testing.

NBS had to address a variety of concerns in developing this new treatment. For example, in addition to stability of the treatment, NBS considered the additional volume and weight that lamination added to the documents. The increase to the thickness of the paper was minimized as the CA was forced into the pores of the paper under

Table 2. NBS 1940 findings (Scribner)

NBS Requirements	CA lamination
1) The protective sheeting / adhesives used were stable.	a) CA is thermoplastic and could be applied to paper with a combination of heat and pressure that circumvented the need for adhesives in the lamination process. b) CA films were found to be stable when tested with an accelerated aging test of 72 hours at 100° C (Scribner 1940).
2) The process was simple and low in cost.	a) Lamination could be done in minutes. b) Minimal training was required to run the machines.
3) The increase in weight and thickness of the treated paper was minimized.	a) Thickness was only 0.0005 inch greater than that of the newspaper sheets because of compression. b) Weight was increased 2.5 times (Scribner 1934).

pressure and heat (Scribner 1940). "The thickness of the combined sheets was only 0.0005 inch greater than that of the newspaper sheets because of the compression of the combination, but the weight was increased 2.5 times" (Scribner 1934).

The lead scientist on the project, Scribner, highlighted the advantageous properties of CA lamination: the transparency of CA to UV, visible, and IR lights which are all used to analyze, view or photograph documents; the sheets were "water cleanable;" lamination was resistant to the passage of deteriorative gases (pollutants); and the speed of lamination made this a quicker treatment than silking. (Scribner 1940) (Silking was a technique to support brittle documents, using thin sheets of silk that were applied to either side of a document with an adhesive, typically wheat starch paste.)

Lamination treatment was evaluated by the NBS at its inception and continued to undergo testing and evaluation over the period of its use. From July 1, 1954 to June 30, 1957 the Paper Section of the NBS re-evaluated lamination and its effects on the preservation of documents. There were concerns over whether lamination was safe for the document, whether certain CA film compositions were better than others, whether lamination increased deterioration of the paper treated, and whether other variables such as the use of an outer layer of tissue or press type impacted the results.

The NBS recommended: a) specific quality specifications for CA composition, b) that alkaline pretreatment of documents (as Barrow advocated) was necessary when the paper to be laminated contained acid (especially if the lamination was done using high temperature), c) that the addition of tissue to the lamination increased the strength of the laminate, d) that the lamination showed little impact on the paper if the paper was neutral or alkaline, e) that either the flat bed or cylindrical press might be used for lamination, and f) newer non-CA plastic films might be used in lamination but future tests were needed to look at delamination, adhesion, and aging qualities (Wilson & Forshee 1959). Institutions using the NBS original method varied in their response to these recommendations.

The Barrow Method

William J. Barrow, a major propagator of lamination as a treatment for paper, began to treat and research decaying paper in 1932 when he founded the Barrow Restoration Laboratory at the State Library of Virginia (Roggia 1999). Barrow worked with leading preservation and conservation organizations in the District of Columbia, and transferred his knowledge and work to numerous state archives, historical societies, and libraries both in the US and abroad throughout his career (Roggia 1999; Church 2005).

From the NBS's earliest uses of lamination Barrow was interested in its effects on documents and the potential of lamination to improve the longevity of paper and materials within archive and library collections. In early correspondence about lamination, Barrow was concerned with how lamination might be used to prevent mold or other biologically induced deterioration, in addition to lending strength to fragile paper.

Barrow began to laminate documents in 1937, when he invented his roller-press laminator which was built by the engineers of the Mariners' Museum in Newport News, VA. He sold his roller-press laminators to institutions around the world, and other companies emulated his model. While Barrow built his conservation/preservation business at the State Library of Virginia, he also started the Barrow Research Laboratory at the Virginia State Historical Society. From the invention of his laminator until his death in 1967 Barrow's lamination method was adopted by many institutions around the world. His business was perpetuated after his death by his family and colleagues, until it was closed in the early 1990s (Roggia 1999).

Deacidification

Barrow developed a two bath deacidification treatment in 1940 to address the issue of acidic paper. Barrow tied the loss of strength in paper to the introduction of acidic alum sizing and use of cheaper and shorter paper fibers in paper manufacture (Gwinn 1981). While not the first person to tie the issues of acidity to paper deterioration, Barrow was a leader in making the information public.

Barrow showed that if the pH of the paper was below 6.0 the acid content would continue to increase. While if the paper's pH was between 6.5 and 7.5, it was "non-acidic" and would be stable (Anon 1966). While the NBS advocated lamination as a process that might prevent paper from decaying, the act of lamination was solely a mechanical treatment and acidic paper would continue to deteriorate chemically after lamination (Anon 1966). Thus, Barrow regarded deacidification as a necessary step prior to lamination if the pH of the paper was less than neutral (Barrow 1965).

By 1946, Barrow's pre-lamination treatment with calcium hydroxide and then calcium bicarbonate was widely known, but was not in general use (Evans 1946). One of the previous advantages of CA lamination was its quick turnover time, but Barrow's deacidification pretreatment added significantly to the total treatment time of a document, which was considered a serious disdvantage.

Barrow acknowledged that in evaluating the stability of the laminate, one should consider how the pH of the CA film in combination with plasticizer loss impacted folding endurance. In his 1965 article he postulated that documents that were laminated but not deacidified prior to lamination might lose as much as half of their original folding-endurance strength (Barrow 1965). Barrow goes on to state that a

much slower rate of deterioration was associated with those documents that were deacidified prior to lamination than those laminated without deacidification. After further improvements were made to the lamination process in the mid 1940s he predicted a very slow rate of deterioration for papers that were deacidified.

Tissue

Almost from the inception of the Barrow lamination method, Barrow advocated for the use of "a strong, well purified cellulose fiber tissue" paper as the most external layer of the laminate to increase its tear resistance and produce a matte surface (Barrow & Carlton 1968). While the outer tissue paper was commonly referred to as Japanese tissue, what was used was often a semi-transparent tissue of variable quality.

Not all documents or document types were treated in the same way in the Barrow Lamination process. In some cases, such as for burned or darkened documents, tissue paper was not included as the external layer of the laminate. The use of tissue paper could obscure the media on the documents as was seen in the Belgium General State Archives where Barrow consulted on the lamination of documents that had fire-damage. In that case the documents laminated with tissue paper were delaminated using acetone baths and re-laminated without tissue paper (Bolsée 1950).

For documents where only one face held information or media (as with many maps) Barrow's lab used a layer of muslin to strengthen the backside of the laminate. However, many institutions did not include tissue paper in their lamination treatments, following the original NBS methods.

Laminator

Barrow invented the roller laminator in 1937 while at the Mariners' Museum, whose engineers built the first model (Roggia 1999). This invention started his lamination business (Marwick 1964).

The roller laminator was less expensive to purchase and use than the hydraulic press used in the NBS study. It was an improvement over the hydraulic press because it reduced the formation of bubbles in the laminate, distributing the pressure more evenly over the document. It also sealed edges more securely and relied on air cooling rather than artificial cooling (Barrow 1939).

The roller laminator was limited in the size of the documents that could fit through the laminator. This meant that oversized materials, like maps, were cut into sections prior to lamination to fit through the laminator. (This limitation would also apply to a hydraulic laminator depending on the size of the hydraulic press.)

CA Lamination Films

By 1940, there were already different CA films available from a variety of vendors, however specific vendors were not mentioned in the NBS report (Scribner 1940). While it is not known which films were used by all institutions, the histories of NARA and Barrow's research laboratory may provide some guidance to the procedures and materials used. NARA and Barrow were leaders in the study and use of lamination, so understanding the trends in what they were using can shed light on what was considered the "gold standard" by other institutions.

Protectoid was the brand of film that was used at NARA when they began lamination in 1936-37 until 1941 when they started to use DuPont's $88CA_48$ and then switched to the Celanese Corporation of America's P-911 in 1957 (Gear 1965). Barrow's account books show that his shop bought CA film from both Celluloid Corp and DuPont in 1941, but by 1942 was only buying from DuPont (unpublished notes). His records seem to indicate that the Barrow shop continued to use and recommend the use of the DuPont CA film until it was discontinued in 1971(unpublished notes; Barrow 1953).

At that time an Eastman Kodak CA film was found to be suitable for lamination by Barrow's Research Laboratory (unpublished notes) and appears to have been used until the Barrow Restoration Laboratory closed in the early 1990s. The exact composition of these films is unknown to the author at this time, as little information on the compositions is available in the literature, and the compositions from individual manufacturers may have changed over time.

CA Lamination Deterioration

Barrow responded to observed deterioration in early laminate films, conducting and publishing research on early laminates. He highlights in his 1965 paper that CA films purchased between 1938-1941 (independently identified as coming from Celluloid according to Barrow's account records) were more acidic than desirable and released an acetic acid odor (Barrow 1965). He believed that this was a result of the cleavage of acetate groups due to residual sulfuric acid from the manufacture of the original CA.

In 1965, he published a paper that looked at the stability of documents that had been treated in the first years of lamination. In this paper, he stated that thousands of deteriorated documents were restored by deacidification and lamination by his shop in the period from 1938-1965. He continued that he had not seen in that time evidence of any deacidified and laminated document becoming more brittle due to deterioration. Barrow tested "reclaimed film" for acid, two samples for each year from 1938-1956, and showed that the films he used after 1941 (Dupont's films) were "relatively free of acid." He proposed that the introduction of magnesium acetate to the film by the manufacturers eliminated the acidic condition.

End of CA Lamination

According to Jones (1987), the critiques of lamination and Barrow's methods started in the mid-1970s after a paper published by Frazer Poole of the Preservation Division of the Library of Congress that highlighted the use of encapsulation over lamination. Poole examined the issues tied to lamination: that it employed heat and pressure which could damage the paper during lamination; and that acidic paper continued to deteriorate after lamination (1976).

While these concerns were not new, encapsulation offered an alternative that was fast, did not employ heat or pressure, and was easily reversible. In the subsequent decades many institutions across the US began to encapsulate documents that would previously have been laminated, with most halting their use of lamination in the 1980s and early 1990s (McGath et al. 2015).

Today

The question of the long-term stability of laminated documents remains open. While a recent survey by this author showed that well over three million documents in the United States have been laminated using CA lamination methods (either NBS or Barrow), fewer than 0.6% of those documents have been delaminated.

The reasons for delamination vary but include observed deterioration, aesthetic concerns, worry over potential deterioration, or to ascertain that delamination is possible. Most CA laminated collections appear to be in relatively good condition at this time according to the survey done by the Heritage Science for Conservation group at Johns Hopkins (which will be covered more fully in a future article)(McGath et al. 2015). However, as CA ages and undergoes hydrolysis, it becomes more difficult to remove by submersion in acetone, thus, as a community we should remain vigilant.

References

Anon, 1966. History of the Barrow Lab, or, The Thirty Years that Revolutionized Paper. Publisher's Weekly, pp.72, 73, 76, 78, 80.

Baker, J.P., 1982. Preservation Programs of The New York Public Library. Part Two: From the 1930s to the'60s. Microform & Imaging Review, 11(1), pp.22–30.

Barrow, W., 1965. Deacidification and Lamination of Deteriorated Documents, 1938–63. The American Archivist, 28(2), pp.285–290.

Barrow, W.J., 1953. Barrow 1953 Letter to Robinson.pdf. Barrow Restoration Laboratory.

Barrow, W.J., 1941. Protection of Documents with Cellulose Acetate Sheeting by B. W. Scribner. The Am.Archivist, 4(3), pp.200–201.

Barrow, W.J., 1939. The Barrow Method of Laminating Documents. The Journal of Documentary Reproduction, pp.147–151.

Barrow, W.J. & Carlton, A.M., 1968. Permanence of Laminating Tissue. The American Archivist, 31(1), pp.88–91.

Bolsée, J., 1950. La restauration des documents aux Archives Générales du Royaume, Bruxelles.

Church, J.A., 2005. William J. Barrow: A Remembrance and Appreciation. The American Archivist, 68(1), pp.152–160.

Cutter, C., 1967. The Restoration of Paper Documents and Manuscripts. College and Research Libraries, 28(6), pp.387–397.

Evans, D.L., 1946. The Lamination Process a British View. The American Archivist, 9(4), pp.320–322.

Gear, J., 1965. Lamination after 30 years: Record and Prospect. The American Archivist, 28(2), pp.293–297.

Gwinn, N., 1981. CLR and Preservation. College and Research Libraries, pp.104–126.

Jones, R., 1987. Barrow Lamination: The North Carolina State Archives Experience. The American Archivist, 50(3), pp.390–396.

Marwick, C.S., 1964. An Historical Study of Paper Document Restoration Methods, Washington, D.C.: The American University.

McGath, M. et al., 2015. Cellulose Acetate Lamination: A Literature Review and Survey of Paper-Based Collections in the United States. Restaurator. International J.for the Pres.of Library and Archival Material, 36(4), pp.333–365.

Minogue, A.E., 1943. The Repair and Preservation of Records. Bulletins of the National Archives, 5.

Poole, F., 1976. Current Lamination Policies of the Library of Congress. The American Archivist, 39(2), pp.157–159.

Roggia, S., 1999. William James Barrow: a Biographical Study of His Formative Years and His Role in the History of Library and Archives Conservation from 1931 to 1941. Columbia University.

Scribner, B.W., 1934. Preservation of Newspaper Records. National Bureau of Standards Miscellaneous Publication, 145, pp.1–10.

Scribner, B.W., 1940. Protection of Documents with Cellulose Acetate Sheeting, Washington, D.C.: U.S. Government Printing Office.

Wilson, W.K. & Forshee, B.W., 1959. Preservation of Documents by Lamination. National Bureau of Standards Monograph 5.

Annual Meeting Abstracts

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

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

Measuring the Stiffness of Brittle Paper

Andrea Hall

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

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

Adhesives in the American Southwest and Microchemical Tests for their Identification

Christina Bisulca, Marilen Pool, Martina Dawley, Nancy Odegaard

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

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

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

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

Leah A. Bright and Catherine R. Matsen

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

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

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

Treatment of a Karajá Feather Headdress

Betsy Burr

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

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

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

Protecting Historic Treasures during California's Fire Season

Tania Collas

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

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

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

At the same time, we've worked on ways to make our evacuation of art and artifacts safer and more efficient. The major brush fires that have swept through nearby regions over the past year have kept us on high alert and pushed us to continue to improve our plan. For next time – and we know there will be a next time – we want to make sure that we can save the Hart Museum's treasures while keeping the safety of our staff as well as our collections at the forefront of the response!

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

Nancy Fonicello

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

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

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

This paper discusses the conservation treatment and significant details revealed by background research that guided the treatment decisions. It explores how the project became a unique collaboration between the conservator and the Arlington curator and chief historian, and includes a discussion of the display mounts and the design of special shipping containers that provided for the safe handling of the objects during transport and treatment.

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

Miles Green

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

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

Jennifer Jae Gutierrez

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

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

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

Culturally Appropriate Consultation: One example

Audrey Harrison

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

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

The request made by the tribal representatives not only posed some preservation challenges but it also provided an opportunity to design and develop a unique preservation method and storage solution. This consultation also raised a number of questions: Is it allowed for objects to be spiritually cleansed? Can the two dresses be stored in one box? What methods are acceptable in a collection facility with sensitive fire suppressant equipment if sage or sweetgrass is requested?

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

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

Mark Mackenzie

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

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

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

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

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

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

Timothy Lewis

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

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

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

Cellulose Acetate Lamination: Composition and Document Condition

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

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

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

Tips Session: Magnets: 201

Denise Migdail

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

Five Generations Preserving the San Xavier Mission

Daniel Morales and Vincent Morales

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

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

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

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

Suzanne Morris and Aneta Zebala

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

In order to prioritize conservation treatments and develop a maintenance plan, it was necessary to examine the overall condition of the polychrome sculptures, decorative architectural elements, wall paintings, and three oil paintings within the mission. It was also important to identify mechanisms that influence deterioration. The mission was separated into the following sections for evaluation: the Choir Loft, Sotocoro, Nave, East Transept, West Transept, Sanctuary & Retablo Mayor, and Sacristy. In each section, dust levels, temperature and light readings, and condition concerns were noted.

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

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

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

Corky Poster

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

In these circumstances, preservation requires a creative and innovative

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

Community Based Archiving: Preserving History and Culture in Barrio Pascua

Guillermo Quiroga and Kari Quiballo

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

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

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

When the museum needed help processing an archival collection of over 4,000 photographs, scholars from the University of Arizona-School of Information Knowledge River Program helped develop a collaborative community-based processing plan. The focus of the Knowledge River Program is advocacy for American Indian and Latino information issues in archives, libraries, and museums. Utilizing the principles of participatory archiving, which engages communities in the collection, preservation, and sharing of records documenting their own histories, Yaqui tribal members gathered to share memories and collectively create the metadata that accompanied the photographs. This community-based archiving project is one example of the steps that the Old Pascua Museum and Yaqui Culture Center are taking towards preserving the culture and history in Barrio Pascua.

Information Session: Emerging Conservation Network

Kimi Taira

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

Conservation of the Interior of San Xavier del Bäc

Matilde Rubio

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

This group also included four Tohono O'odham trainees from San Xavier. Between 1996 – 1997, an art conservator from Spain came along to join that group. During this campaign, the entire interior of the Mission was restored except for the Baptistery. Since 2001 Spanish conservator, Matilde Rubio, and one of the Tohono O'Odham trainees, Tim Lewis, have been working on the interior, two or three months per year depending on the funds that are available. In this time the restoration of the Baptistery has been completed. Since San Xavier is a living church, the interior requires constant attention.

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

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

Silicone Solvents, Emulsions, and More – Oh My

Chris Stavroudis

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

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

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

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

Products:
Xanthan Gum Clear
Germaben II
from The Personal Formulator at http://www.personalformulator.com
Cyclomethicone (D5)
From ChemistryStore.com at http://www.chemistrystore.com

Working with Communities: A New Resource for Collaboration

Landis Smith and Martina Dawley

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

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

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

Articles You May Have Missed

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

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

It's also where you'll find George Grigonis, Collections Technician and Conservator, and the lab's head problem-solver for the past six years—originally as a volunteer, then as part of the staff.

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

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

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

"Showtime at the Musée d'Orsay: Watching Varnish Dry," *The New York Times,* 08/15/2016

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

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

Many art conservators are evolving into museum ambassadors —

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

Robert W. Vint

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

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

the subject of in-house blogs, videos and special lectures.

The Musée d'Orsay, meanwhile, is carrying out a series of public restoration projects, with 150,000 euros raised in a crowdfunding appeal, to rejuvenate the Courbet masterpiece "The Artist's Studio." The Courbet restoration has proved so successful with donors that the museum is exploring its reserves for other works in need of repair.

Crédit Agricole, a French bank that had never contributed to art restoration before, donated 450,000 euros to repair three Academy style works. Nathalie Mourlon, who leads business development at Crédit Agricole d'Ile-de-France, said the makeover had a particular appeal.

"What we liked about it enormously is that the process is visible," she said. "It makes the works more accessible to the public."

"Lost Heritage: Massive Quake Deals Blow to Italy's Art Treasures," *Associated Press,* 08/29/2016

Last week's quake and several powerful aftershocks dealt the latest blow to Italy's long-deteriorating abundance of art and architecture.

Even without nature's fury, monumental fountains, churches and ancient Roman ruins were already vulnerable to car exhaust fumes, vandalism and other human-inflicted damage.

Italy's most urgent priorities are to ensure shelter for those needing a safe roof after Wednesday's temblor and to keep digging for any more victims' bodies. But the stricken region's cultural heritage of medieval paintings, sculptures, bell towers and other monuments is vitally entwined with inhabitants' daily lives and intrinsic to Italy's international reputation as a treasure trove of art.

Hardest hit was the medieval town of Amatrice, where collapsing houses claimed 229 of the nearly 300 lives taken in the quake. Art historian Alia Englen spent the better part of three years studying every monument and church in Amatrice, aided by the retired director of the town's museum who perished in the quake. In an interview with La Stampa daily, Englen said Amatrice's 115 churches contained around 3,500 artistically significant pieces.

Italy chronically underspends on caring for its immense array of artworks, medieval, Renaissance and Baroque palazzi and ancient Roman ruins and often turns to corporate sponsors to help fund restorations. But these sponsors, ranging from Italian fashion houses to Japanese textile companies, typically favor associations with the most internationally prestigious monuments, such as Rome's Colosseum or Trevi Fountain.

"Revealed: A Lost Ontario Art Treasure," *Toronto Star*, 08/28/2016

Hidden from view for more than a century, a lost Ontario art treasure is finally being revealed. Back in 1912, a massive four-panel mural of stylized maple leaves painted on the ceiling of the legislative chamber at Queen's Park by Gustav Hahn in 1893 was covered by layers of horse hair, canvas and white paint.

At that time, large acoustic baffles were glued and nailed into the Art Nouveau paintings to muffle the din, after MPPs complained they could barely hear one another on the floor of the assembly. The 7.5 cm-thick padding has absorbed the sound of every debate in the House since the year the Titanic sank. But gravity was starting to take its toll on the sagging, primitive insulation, and fears were growing that a six-sided, 12-square-metre panel might eventually collapse on MPPs, pages and legislative staff.

Jelena Bajcetic, director of the precinct properties' branch, notes that the horse hair and canvas padding actually helped preserve Hahn's mural — notwithstanding the damage caused by hefty nails and fish glue. Bajcetic says that with the help of a heritage architect and an art conservationist, the acoustic panels were safely removed and nail holes in the oak tongue-and-groove boards were repaired.

As for the acoustics, Deller admits she has her fingers crossed for the return of MPPs from their summer break on Sept. 12. "Sound technology has improved a lot since 1912," she says, noting that there have been consultations with a sound engineer and in-house experts at the legislature's broadcasting and recording department.

"Facelift Begins on State Museum's 'Mona Lisa'." *PennLive.com*, 08/30/2016

The Mammal Hall at the State Museum of Pennsylvania in Harrisburg is one of the most memorable and recognizable rooms in the Harrisburg Capitol Complex. Many people remember visiting here as a child and, for families across Pennsylvania, it has become a multigenerational reflection point.

"This is our Mona Lisa," said Beth Hager, the museum's acting director. "This is what everyone gravitates toward." Today the circular hall is split nearly in half by a white modular wall. Behind the wall a small team of experts are at work, carefully removing the taxidermy specimens that are the center of each exhibit.

As part of a $680,000 renovation of the exhibit that began recently and will continue into 2017, each specimen will be packaged and shipped to New Jersey, specifically to the studio of George Dante, a master taxidermist in West Patterson. There, Dante will check each animal for cracks or other splits — the animals are original to the exhibit, which opened in 1968 — then repaint and groom them before shipping them back to Harrisburg.

While Dante is working with the animals, another part of the team, led by Stephen Quinn will work on the other elements of the displays — the trees and bushes which compose the display, as well as the murals which provide the background for each setting. Quinn is a former artist with the American Museum of Natural History in New York.

"Archaeologists Restore Second Temple Flooring from Waqf's Trash," *Haaretz,* 09/06/2016

Sections of floor tiling from the Second Temple courtyard have been restored by archaeologists, using fragments found in debris removed from the Temple Mount.

The team believes the regally decorated tiles adorned porticos atop the Temple Mount during the reign of Roman vassal King Herod in Jerusalem, from 37 to 4 BCE. Zachi Dvira, co-founder and director of the project said it was the first time archaeologists have restored a part of the Second Temple complex.

Among the many finds are

some 600 colored floor tile pieces, of which about 100 have been dated with near-certainty to the Second Temple period. The tiles were made of polished multicolored stone perfectly cut in a variety of geometric shapes. The flooring has been dated partly on the basis of the types of stones from which they were made.

Most were imported from Rome, Asia Minor, Tunisia and Egypt. A key characteristic of Herodian tiles is that they were sized to correspond to the Roman foot.

The tiles were restored by Frankie Snyder, an expert in ancient Roman and Herodian style flooring, who came to the Temple Mount project as a volunteer in 2007. So far the team has restored seven potential designs of the "majestic flooring" of the mount, Snyder said. The patterns were made up largely of squares, triangles, and star-shaped forms. The restored tiles will be shown publicly for the first time on Thursday, at the 17th Annual City of David Archaeological Conference.

"400-Year-Old Shakespeare Portrait may be Cleaned for the First Time," *Newsweek*, 09/06/2016

The only portrait of William Shakespeare believed to have been drawn from life may be cleaned for the first time in 400 years.

The painting is attributed to the artist John Taylor and named after a previous owner, the Duke of Chandos. It was the first work donated to the National Portrait Gallery in London after its formation in 1856.

The Chandos portrait portrays the playwright as having thick, long black hair—albeit with a receding hairline. He is also depicted sporting a gold hooped earring on his left ear.

Experts believe that any conservation treatment done to the famous Chandos portrait, dated between 1600 and 1610, could alter the image that has become synonymous with the Bard.

The Times reports the portrait has undergone several changes since it was originally painted, including the lengthening of Shakespeare's hair. These later additions could be lost in renovation work, although this could indeed offer a more realistic likeness of the Romeo and Juliet playwright.

"The original restored works can look very different. You could get a dramatic revelation," said Chris Bill of the Fine Art Restoration Company. However, the National Portrait Gallery stated it was still considering conservation work on the art work and will not make a final decision until the summer of 2017.

'Science Proves a Bird Didn't Shit on Edvard Munch's "The Scream",' *Hyperallergic*, 09/07/2015

At least one longstanding mystery that has apparently plagued art history may be laid to rest: white splatters that grace the canvas of the earliest and most famous of Edvard Munch's "The Scream" paintings are not dried bird droppings.

According to a devoted team of researchers from the Universities of Antwerp and Oslo as well as Oslo's Nasjonalmuseet who analyzed the work, the markings are really wax — dribble from an accidentally tipped candle rather than that from a passing, pooping pigeon.

They recently published their findings online, in a short study titled "Solving a Cold Case: the Bird Droppings Mystery." As Munch often painted en plein air, some art historians have believed that many of his works reveal traces of bird droppings.

The researchers remained skeptical of such conclusions, noting that the white spots by the painted figure's right shoulder look nothing like bird waste; the museum's Paintings Conservator Thierry Ford also noted that dried bird poop usually corrodes while the mysterious substance lies on top of the paint, and parts that have flaked off in the past left no damage.

This May, the team began examining the painting — primarily to study Munch's techniques, but, as cultural heritage scientist Dr. Geert Van der Snickt very rightly said, "it would have been a mistake not to exploit the passage of the Antwerp state-of-the-art equipment to try and settle the long standing bird droppings dispute."

"Exciting Major Art World Discovery of Lost Magritte Painting Comes to Light," *ArtDaily.org*, 09/09/2016

An extraordinary art world mystery relating to a missing painting by René Magritte (1898 – 1967) is inching closer to being solved due to an exciting recent discovery in Norwich.

La Condition Humaine of 1935, in the collection of Norfolk Museums Service, was painted over a quarter of an earlier painting by Magritte entitled La Pose Enchantée which is only known from an old black and white photograph. The last reference to La Pose Enchantée, a large painting of two female nudes, was in 1932, after which it completely disappeared.

What happened to the missing painting is now, however, slowly coming to light in a remarkable series of events. Magritte must have decided to cut the painting into quarters, and then painted four completely different paintings over the top.

The explanation for the disappearance of La Pose Enchantée came to light in 2013 when two paintings were discovered to have been part of the missing canvas, one in the collection of the Museum of Modern Art (The Portrait) in New York and the other in the Moderna Museet (The Red Model) in Stockholm.

Two, however, still remained lost. That is until now when the third, the lower-right quarter, emerged in Norwich. Conservator Alice Tavares da Silva, discovered that the edges of the painting are, unusually for Magritte, painted over and round the stretcher with what appeared to be form and colour unrelated to the composition painted on the front.

Further research led her to a report from conservators at MoMA which revealed striking similarities. Dr. Giorgia Bottinelli, Curator of Historic Art, Norwich Castle Museum & Art Gallery, concluded: "The mystery of the whereabouts of Magritte's La Pose enchantée has almost been solved. All we need to discover now is where the fourth and final, upper-right hand quarter is. Then this exciting art world jigsaw puzzle will be complete".

"MIT, Georgia Tech Researchers Use Terahertz Imaging to Read Books without Opening Them," *Tech Times*, 09/10/2016

Researchers from the Massachusetts Institute of Technology (MIT) and their colleagues over at the Georgia Institute of Technology are

devising an imaging system that will allow the reading of closed books.

In a study published in the journal Nature Communications, the researchers detailed the prototype system they have designed, which has so far been tested on a stack of papers.

Though still in the prototype stage, New York's Metropolitan Museum has shown interest in the technology, which can be used to examine the contents of antique books without damaging the object.

According to the researchers, the imaging system can also be used for analyzing materials in thin layers, like coatings on pharmaceuticals or machine parts. Barmak Heshmat, corresponding author for the study, said the imaging system they devised is "actually kind of scary" because it can be used to get through letter certification on websites like captchas.

The imaging system relies on terahertz radiation, an electromagnetic radiation band between infrared and microwave light. It's commonly used for security screening as different chemicals absorb different terahertz radiation frequencies at varying degrees, resulting in distinct frequency signatures.

For the purposes of imaging, terahertz radiation is preferred over X-rays, for instance, because it features frequency profiles that can differentiate between blank paper and ink.

"Modern Technology Unlocks Secrets of a Damaged Biblical Scroll," *The New York Times*, 09/21/2016

Nearly half a century ago, archaeologists found a charred ancient scroll in the ark of a synagogue on the western shore of the Dead Sea. The lump of carbonized parchment could not be opened or read. Its curators did nothing but conserve it, hoping that new technology might one day emerge to make the scroll legible.

Just such a technology has now been perfected by computer scientists at the University of Kentucky. Working with biblical scholars in Jerusalem, they have used a computer to unfurl a digital image of the scroll which turns out to hold a fragment identical to the Masoretic text of the Hebrew Bible and, at nearly 2,000 years old, is the earliest instance of the text.

The experts say this new method may make it possible to read other ancient scrolls, including several Dead Sea scrolls and about 300 carbonized ones from Herculaneum, which were destroyed by the volcanic eruption of Mount Vesuvius in A.D. 79.

The feat of recovering the text was made possible by software programs developed by W. Brent Seales, a computer scientist at the University of Kentucky who has been working for the last 13 years on ways to read the text inside an ancient scroll.

He has since developed a method, called virtual unwrapping, to model the surface of an ancient scroll in the form of a mesh of tiny triangles. Each triangle can be resized by the computer until the virtual surface makes the best fit to the internal structure of the scroll, as revealed by the scanning method.

The blobs of ink are assigned to their right place on the structure, and the computer then unfolds the whole 3-D structure into a 2-D sheet. The suite of software programs, called Volume Cartography, will become open source when Dr. Seales's current government grant ends.

"Italy's Art Historians, Firefighters and Special Police Scramble to Rescue Quake-Stricken Amatrice's Heritage," *PRI*, 09/22/2016

More than 290 people died after a disastrous 6.2-magnitude earthquake hit the three villages of Amatrice, Accumoli and Arquata del Tronto on Aug. 24. "Three quarters of the town is not there anymore," Amatrice Mayor Sergio Pirozzi said.

Thousands of residents are still homeless. The focus is now on helping the survivors — and on rebuilding the city.

At the same time, though, a special rescue effort is underway to recover Amatrice's cultural heritage: the centuries-old paintings, art and religious objects in the town's damaged or collapsed churches, libraries and museums.

"In Amatrice, a lot of buildings came down — really came down. Churches: they have no roofs anymore," says Maria Elisabetta Prunas, a conservation specialist with the Institute for Conservation and Restoration, a technical branch of Italy's culture ministry that deals with restoration and conservation of works of art and cultural heritage. "That's why we're working here and trying to rescue all the historical artifacts that we can find and the paintings and all that means culture for us."

The task is enormous. The earthquake hit a town that's famous for its "cento chiese": 100 churches filled with frescoes, mosaics and sculptures. The town museum, which contained collections of sacred art from the Middle Ages and early Renaissance period, was also badly damaged.

"'Botched' Repair to China's Great Wall Provokes Outrage," *The New York Times*, 09/22/2016

Chinese preservationists, internet users and media commentators have been incensed this week after pictures showed that officials repaired part of the Great Wall in northeast China by slapping a white substance on top of the crumbling, weathered stones.

A once unkempt, haunting 700-year-old stretch of the wall now looks like a cement skateboarding lane dumped in the wilderness. "This was vandalism done in the name of preservation," said Liu Fusheng, a park officer from the county who first raised an outcry about the work.

The repairs to the 1.2-mile section of the wall were undertaken two years ago but came to wide attention only on Wednesday, after a local newspaper, The Huashang Morning News, described what had been done. In an interview, Dong Yaohui, a vice chairman of the China Great Wall Society and an expert on preserving the wall, said, "Our principle in repairing the Great Wall is to minimize interference. It's not important whether you used lime or cement. Repairing it like this has wiped out all the culture and history."

He said the society, a government-sponsored organization, had been investigating damage along the entire Great Wall in the hope of spurring more action and stronger rules to preserve it. "There's serious damage on many parts of the Great Wall," he said.

Cultural preservation officials responsible for that part of the wall

defended their efforts. They said that the section was in danger of falling down, that the higher authorities approved their plans and that, like emergency dental work, beauty was not their priority.

"See How Art Treasures are Restored at Kanazawa Studio," *Japan Times*,

Ishikawa Prefecture is inviting visitors to view a studio where cultural assets are restored in a bid to draw public attention to the skill of art repair, the first such attempt by a local government in Japan.

Ishikawa is known for traditional urushi lacquerware known as Wajima-nuri and is currently the only local government that manages such a facility, although the national museums in Tokyo, Kyoto, Nara, and Fukuoka have their own.

Visitors are allowed to observe conservators anytime while the studio is open. Viewed through a window, they work in a room with fixed temperature and humidity. "We want people to come by anytime and recognize the work here," said Kiyoe Takashima, 61-year-old deputy director of the studio.

As many as 100 people are currently visiting every day. The studio also restores contemporary artworks. Takashima says contemporary artworks are as valuable as historical assets and should be handed down to future generations. Since paints and adhesives containing chemical materials are used in some modern artworks, conservators are learning new techniques to deal with them. The studio has also helped train new conservators, Takashima said.

"Getty Conservation Institute Begins Restoration of Louis Kahn's Salk Institute," *The Architect's Newspaper*, 09/26/2016

The Getty Conservation Institute (GCI) announced this morning that after three years of research, construction is currently underway on a series of architectural conservation efforts aimed at restoring the luster of Louis Kahn's seminal Southern California work, the Salk Insitute of Biological Studies in La Jolla, California.

The GCI is providing research and funding to enact necessary site repairs and develop a long-term conservation management plan at the 51-year old complex, widely considered to be one of Kahn's masterworks.

The complex is designed as a series of laboratories and offices overlooking a central courtyard facing the Pacific Ocean; its buildings are articulated in monolithic concrete walls and outfitted with custom-made teak windows.

The Institute's beachside locale has resulted in extensive deterioration and a "non-uniform appearance" of those distinctive teak elements, which number 203 in total. Research conducted by the GCI team discovered that the window walls were suffering from particular forms of deterioration resulting from the presence of a fungal biofilm growing on the frames, exposure to the elements, and the detrimental effects of prior maintenance efforts.

The windows also suffer from moisture infiltration resulting from a lack of flashing and weather stripping and, additionally, the outright failure of weather sealants. Now that research has concluded, construction has begun and the project is due to finish in the spring of 2017.

"WPA-Era Courthouse Murals Undergo Restoration," *Enid News,* 09/26/2016

Murals painted by a Works Progress Administration artist in 1935 and 1936 in Garfield County Court House underwent professional restoration and cleaning over the weekend.

The murals depict life in this area from the time Indians lived off the land through the Cherokee Strip Land Run of 1893. Ruth Munro Augur was awarded the contract for the murals in 1934 through WPA's Federal Art Project.

A committee was formed to raise funds for the restoration and cleaning by Denver-based Western Center for the Conservation of Fine Arts' Carmen Bria Jr., Camilla Van Vooren and Hays Shoop. Bria said there was some graffiti to repair, as well as some water damage and abrasions to some of the murals.

"Basically, it's grime removal, maybe some varnish, some inpainting and minor repairs. There are no major issues. The canvas is adhered to the wall, which is a common thing," he said. "In this case, they are well adhered. For public murals, in a very public building that is not a museum, they're in great shape. It should be a fun weekend."

"Prison Sentence over Smashing of Shrines in Timbuktu: 9 Years," *The New York Times*, 09/27/2016

Judges at the International Criminal Court ordered a radical Islamist on Tuesday to serve nine years in prison for his role in demolishing historic Muslim shrines in Timbuktu, Mali, in the court's first prosecution of the destruction of cultural heritage as a war crime.

The judges said that Ahmad al-Faqi al-Mahdi, a member of a jihadist group linked to Al Qaeda, had committed a war crime in the summer of 2012 when he organized the smashing of the revered shrines, which were built centuries ago above the tombs of venerated Muslim holy men and scholars.

Mr. Mahdi, who was born in Mali around 1975, stood and listened to a translation in Arabic as the presiding judge, Raul Cano Pangalangan, read out the sentence in English. The session was broadcast from the court, in The Hague.

All nine of the smashed shrines — modest structures of mud and stones, each about the size of a large room — have since been rebuilt over the tombs, with foreign donors paying for the restoration. The disfigured door of an age-old local mosque has also been repaired.

All but one of the structures were part of the Timbuktu world heritage site recognized by Unesco. The case comes amid growing concern about the fate of many cultural and religious monuments in the Middle East and North Africa.

"The Queen's House at Greenwich Reopens after £3m Restoration," *The Guardian*, 10/04/2016

For true authenticity, Anne of Denmark's beautiful white house in Greenwich, which reopens after a £3m restoration, should really have a stream of traffic running through it.

When, 400 years ago, the queen commissioned a brilliant young architect called Inigo Jones to build her the first

purely classical house in England, a shockingly modern creation instead of the warren of red brick buildings of the Tudor palace down by the riverside, the only minor inconvenience was that the main road, now a colonnaded walkway, ran right through it.

Jones's solution was to build the house as the grandest bridge in England over the road, which was enclosed in 10ft walls to protect the royal privacy.

The house, now part of the Royal Museums Greenwich complex, reopens with a dazzling art collection including many pictures that originally hung there returning on loan, among them a huge painting by Orazio Gentileschi from the Royal Collection, which Henrietta Maria and Charles I commissioned for the house in the 17th century.

Norcia, Al Via Restauro Per 48 Opere D'arte Danneggiate Dal Sisma," *Travelnostop.com*, 10/11/2016

Forty-eight works kept in the church of San Pellegrino, in the homonymous village of Norcia, badly damaged by the earthquake of August 24 and currently unusable, have been recovered and transported to the storage facilities of the Holy Nail, near Spoleto, where the first steps of conservation and restoration will be initiated.

These are sculptures, paintings, processional banners, furnishings and vestments that were inside the church and sacristy. The works were extracted from the rubble by technicians of the Superintendence of Archaeology, Fine Arts and Landscape in Umbria along with teams of firefighters and with the cooperation of the carabinieri of the Cultural Heritage Protection Command.

Meanwhile the Ministry of Cultural Heritage and Activities and Tourism (MIBACT) has revealed that, thanks to the collaboration between the municipality and the Superintendence, the Museum of Castellina di Norcia has begun restoration on archaeological finds damaged by falling within the museum showcases.

The restoration was carried out in collaboration with the director of the Museum, restorers and technicians of the Superintendence in an on-site emergency response and will be completed this week.

"Selldorf Architects Chosen to Upgrade and Expand The Frick Collection," *The Architect's Newspaper*, 10/20/2016

New York-based Selldorf Architects will be helming The Frick Collection's enhancement of its existing home, the Beaux Arts style Henry Clay Frick House in Manhattan's Upper East Side.

The Frick's efforts to expand have previously not gone smoothly. The museum faced outcry when it planned to remove a garden and add six stories to its east wing. Those plans were abandoned but the Frick, saying it still faced a shortage of exhibition space, vowed to find other ways to expand.

A press release announced that the new enhancements will include a suite of rooms on the second floor of the historic house for use as exhibition galleries, the creation of a new gallery for the presentation of special exhibitions on the main floor, educational and public programming spaces and the establishment of state-of-the-art conservation spaces.

"Restored and Ravishing: The Magnificent Ghent Altarpiece Gives up its Centuries-Old Mysteries," *The Guardian,* 10/12/2016

With the Ghent Altarpiece restoration one-third complete, the discoveries are astonishing, casting light on a touching story of fraternal love and admiration.

"The surprises begin with the frame itself," says Bart Devolder, onsite co-ordinator of the project. On the frame is a famous inscription, discovered in an 1823 restoration, that some believed it to be a 16th century addition, perhaps even a forgery.

"Our restoration confirmed that the inscription was original," says Devolder. The words name the donors, give the date of completion and describe the altarpiece as having been begun by Hubert van Eyck, and finished by his brother, Jan, who is "second in art" – as in second-best – to Hubert. The inscription was almost certainly added by Jan and his self-categorisation as "second in art" was probably more about brotherly love and humility than any objective ranking of artistic greatness.

The timeline of the work's creation has also been something of a mystery. Was the altarpiece painted in several phases, over nearly a decade, rather than between 1426 and 1432 as is commonly thought?

Devolder believes he has the answer: "Two panels, one from the painting of Eve and one from the panel of the hermits, were dendrochronologically tested and shown to have come from the same tree trunk." This points overwhelmingly to the shorter timespan.

But the most shocking of these new discoveries is how much of Jan's painting has been covered up for centuries. "We estimate that 70% of the exterior wing panels contain overpainting," says Devolder.

The fact that such a wealth of information has been revealed by the restoration of just one-third of the altarpiece is making many wonder what might be further revealed. Funding for the project has already been increased. The Ghent Altarpiece, it seems, has only just begun to give up its mysteries.

"Resurrecting Vasari's 'The Last Supper'," *The Wall Street Journal,* 10/30/2016

In November 1966, torrential rains sent the Arno River pouring over its banks and damaging or destroying thousands of paintings, frescoes and manuscripts. One victim was "The Last Supper," by Giorgio Vasari.

Vasari's work remained submerged under a viscous mix of flood water, sewage and oil for more than 12 hours, causing the wood to warp and the paint to peel. Now, exactly 50 years after the devastating flood, Vasari's rendering of Christ's last supper will return home to Santa Croce after a painstaking restoration funded by the Getty Foundation and fashion house Prada.

Its unveiling, on Nov. 4, marks the last major flood-damaged work to be restored to public viewing. For decades, it was kept in storage, laid horizontally because of its fragility. "It was considered impossible to restore," says Marco Ciatti, head of the Opificio delle Pietre Dure.

AYMHM, continued

The painting was also covered with a thin crust of dried paper, attached by volunteers after the flood to keep the paint from sagging off the wet wood. When a new team of conservators undertook the project in 2009, they X-rayed the work to understand where the cracks were.

Originally, they feared they would have to separate the painting from the panel and reapply it to a new layer of wood. But after the conservators began to carefully peel the paper away from the painting's surface, using tweezers, they found the work in better condition than they expected. They managed to reattach the original gesso using surgical needles.

"LAPD Investigating Boyle Heights Vandalism as Possible Hate Crimes Sparked by Gentrification Fight," *Los Angeles Times*, 11/03/2016

The Los Angeles Police Department is treating three acts of vandalism in the last month targeting art galleries in Boyle Heights, including graffiti at one gallery that attacked "white art," as possible hate crimes.

The probe comes amid a debate in the predominantly Latino Eastside neighborhood over the growing art scene there and whether it's part of a gentrification that some activists fear will push working-class families out.

Galleries have been popping up in the area over the last few years as some artists get priced out of downtown's Arts District and other areas. "We don't know who actually did [the vandalism], but because it actually made a reference to anti-white art or anti-white, it's basically saying that it's a hate crime based on that," Det. John Parra of the LAPD's Hollenbeck station said of a vulgar curse against "white art" that in one of the incidents was spray-painted on the Nicodim Gallery.

Boyle Heights has become a flashpoint as Los Angeles undergoes a wave of gentrification fueled by rising home prices and a renewed interest in urban neighborhoods by many. It's already transformed once-working-class communities such as Echo Park and Highland Park.

But some in Boyle Heights — for decades the heart of L.A.'s Mexican American community — have vowed to fight the change.

Membership, continued

A small but interesting fact, courtesy of The New Yorker review of Paul Simon's music:

"Mother and Child Reunion" was named for a chicken-and-egg entrée he had seen on a Chinatown menu.