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# Attractions In and Around the Monterey Peninsula

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## Point Lobos State Natural Reserve

A pristine portion of coastal terrain located south of Carmel on Highway 1. There are dramatic rock formations rising from the ocean, lovely creatures like the pocket gopher and the rare southern sea otter, and trails both easy and challenging; the Cypress Grove Trail is a common favorite.

Parking inside the reserve costs \$10, but you can park outside of it along Highway 1 and walk in for free. For more information, check out the Point Lobos Foundation's website.

## Carmel

South of Monterey and Pebble Beach, Carmel-by-the-Sea is a humble seaside village with a few small shops and cafés -- yeah, right. Despite the touristy scene, it does have charm, good restaurants, and a nice little beach.

## Monterey Bay Aquarium

The Open Sea Exhibit best exemplifies how special the massive Monterey Bay Aquarium is: Sea turtles, stingrays, and schools of fish have one million gallons of water to explore. Still it's usually the southern sea otters, penguins, and giant octopuses that garner the most attention; so, if you can, stick around for one of the feedings.

The Aquarium sits at the end of Cannery Row. Entry costs a staggering \$29.95, but most visitors claim the sights inside are well worth it. Also, free parking near the aquarium is nearly impossible to find, so use one of the nearby garages. The facility is open daily from about 10 a.m. to 6 p.m. with slightly shorter hours in the winter and longer summer hours.

## Dennis the Menace Park

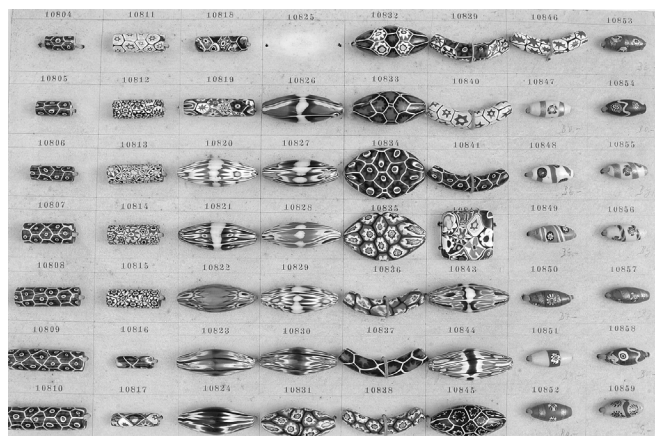
For the kiddies who have tired of the beach (do kids ever get tired of the beach?) This park, about 5 miles from Asilomar near downtown Monterey, has all sorts of cool climbs, slides, etc.



## Picard Trade Bead Museum

Ruth and John Picard have been collecting, dealing with, and writing about African trade beads for 40 years. The Picard Bead Museum is the only museum in the world dedicated to the collection and study of beads made or traded in Africa. Over 50,000 beads, as well as African art, are exhibited in 3,500 square feet of gallery space. The Picards also have a large selection of collector beads and new styles from the Czech Republic for sale in the small gift shop.

They are usually only open by appointment, but I will try to arrange for them to be open for us on Friday or Saturday. It's located a short way into Carmel Vally, a really nice drive.



## General

Despite the sense of serene isolation at Asilomar, it is actually embedded in Pacific Grove, and the main shopping and dining area on Lighthouse Drive is about a mile away.

Also, for those to whom this matters, there is a Peet's Coffee in downtown Monterey.

and then there is **Big Sur** ...

As a New Yorker friend said when he first saw it "God created the world, but he lives here."

It's a bit less green due to the drought, and there may be occasional road repair issues if there have been rockslides, but the timing of the meeting means we will not have all the summer traffic. One can't describe everything to explore along this road, but here are some good things.

Driving down from Monterey, the first park of note is **Andrew Molera**, 20 miles south of Carmel. With mostly level terrain, it has miles of trails through meadows and beaches. (beautiful, but a bit tame compared to further down the road.)

A few miles on is **Pfeiffer Beach**. The turnoff is hard to find (intentionally?); it's just a bit past the Ranger Station on the other side of the road, then you drive two miles to the beach. Day use, \$10 / car. A must, if only to take a selfie in front of the arched rock with the waves crashing through.





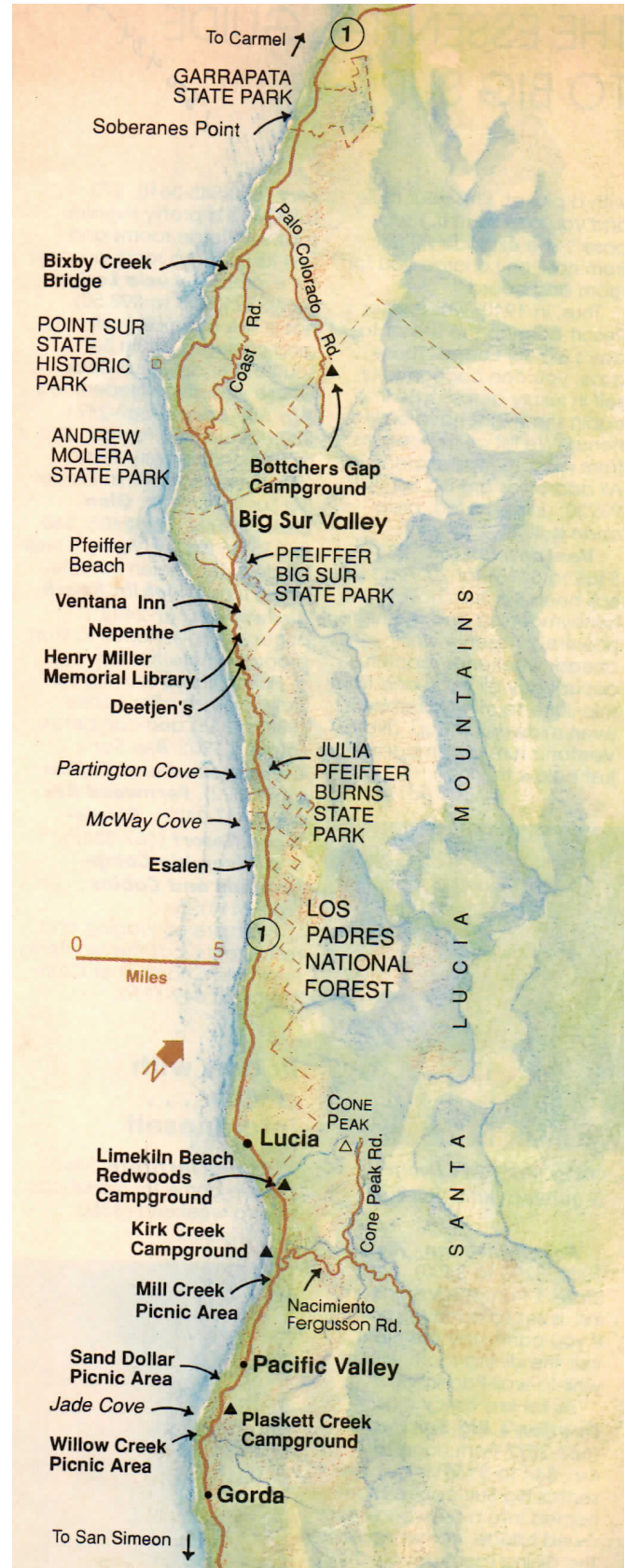
the path to the beach

There are a few places to eat by the river along the way, but best is to go for the views at either the deck at Ventana (the restaurant is a bit farther up the hill from the Inn) or the cafe on the terrace at Nepenthe, which is less expensive, though not cheap. Of course, there is always the restaurant at the Post Ranch Inn, where the rooms start at \$1200 /night. They have a prix fixe lunch with wine pairings that comes to about \$100, but it may well be worth it.

The driving time from Carmel to Nepenthe is about an hour, not counting the many stops for photos or time for hiking or the beach, so a round trip would make a good day's outing.

If you want to go further south, or you are driving all the way to LA, the next good stop is **Julia Pfeiffer Burns State Park**, 37 miles south of Carmel. You have the choice of hikes, west to a spectacular view of the ocean and a waterfall, or up the hill through redwoods. Again, \$10 / car, or park on the road.

For the next 20 miles or so, the road gets really wicked with great hairpin turns and then starts to level off to coastal meadows (you may recognize it from many car commercials), which is really the end of the "Big Sur drive experience." But in the right season, sea lions hang out in the small coves along here and it's still quite beautiful.



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## Regional News

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### Alaska

**Helen Alten** and the Sheldon Museum staff spent the last half of the winter removing the lower level permanent exhibit gallery and installing the Smithsonian's *Key Ingredients* exhibition which is their summer show. When the show closes, the area will be cleared and ready for transformation into a storage area, pending success with the NEH grant.

Helen taught the AASLH Collections Management and Practices workshop May 14-15, at the Sheldon Museum and Cultural Center in Haines, AK. Immediately following, on May 16, she taught a Reshaping Workshop about using humidification to reshape rolled maps and photographs. This kicks off a project of cataloging and treating the oversized archival materials in the museum's collection.

**Ellen Carrlee** has been participating in the physical layouts for the new museum, opening spring 2016. There are approximately 22 interpretive areas, 90+ exhibit cases and over 2,500 artifacts.

In January, **Gwen Manthey** returned to the Alaska State Museum to treat icons and paintings, and **Karen Zukor** came to survey more than 70 works on paper. Ellen's weblog has been listing some of the treatments coming up for three summer objects interns: **Betsy Burr** from the UCLA/ Getty program, **Leah Bright** from the U. Delaware/ Winterthur program, and **Anne-Marie Guerin** from the Queen's program. Ellen was grateful to attend the recent gutskin sewing workshop which took place in Bethel.

**Scott Carrlee** is leading a project to create 70 or more conservation approved exhibit mannequins that will be used in the new exhibits of the Alaska State Museum which will re-open to the public in May of 2016. The project includes an intensive mannequin-making workshop that will include input from Helen Alten from the Sheldon Museum in Haines Alaska, Ellen Carrlee from the Alaska State Museums, and **Sarah Owens** from Anchorage Museum in Anchorage.

**Sarah Owens** conserved and installed objects for the exhibition *City Limits*, an official program of the Anchorage Centennial Celebration. Filling four galleries, the exhibition includes objects, artwork, and historical images from the museum's permanent collection. Each helps tell the story of Anchorage's development and expansion on the Cook Inlet landscape.

Sarah continued to participate in the Conservator's Corner, where visitors get a behind-the-scenes look at conservation in action. In January, Sarah went to Bethel to help facilitate the community workshop component of the 'sewing gut' Materials Tradition residency – a program of the Anchorage Museum and Smithsonian's Arctic Studies Center. The workshop was taught by Instructor **Mary Tunuchuk** of Chefnak, at the Yupiit Piciryarait Cultural Center in Bethel.

**Monica Shah** conserved a mid-19<sup>th</sup> century gut parka and helped install objects for *Arctic Ambitions*, an exhibit about Captain James Cook's voyage in the Pacific (1778-1779). This was the first time for most of these objects to be returned to Alaska since being collected. One of the highlights is a Nuu-chah-nulth mountain goat wool and cedar bark robe, in the style known today as Chilkat weaving. It is one of the earliest complete examples of the transition from geometric to formline design. Weavers in Alaska will be able to view the robe for the first time.

In addition, Sarah and Monica participated in the fourth Materials Traditions residency, which brought together three Alaska Native artists and focused on the traditional arts and technologies of ivory carving. Conservators at the National Museum of the American Indian were able to talk with the artists via video conferencing, and the session was taped and made available to the UCLA/Getty and Winterthur graduate programs. Videos detailing the work of the Materials Tradition residencies (fish skin, quill work, and gut sewing) can be found at the Smithsonian NMNH's YouTube page.

*Regional Reporter:*  
Ellen Carrlee

### Arizona

The conservators at the National Park Service Western Archeological and Conservation Center have been busy this past quarter. **Dana Senge** recently traveled to Yellowstone to treat ethnographic objects and survey several parts of the museum's collections. **Maggie Hill-Kipling** has been focusing on ethnographic objects from the Grand Teton collection, and **Audrey Harrison** has been training students on creating microclimates for metals storage.

They are sad to report that their fearless leader, **Brynn Bender**, has left her position as Senior Conservator at WACC for wonderful adventures on the east coast. Brynn has also stepped down as the Regional Reporter for Arizona. Dana has agreed to take her place! Thanks Brynn for your years of service, and thanks Dana for continuing the tradition!

**Gloria Giffords** has retired but continues to inspire as the guest curator of a new exhibition, *Intimacy of Faith*, at the Arizona State Museum April 18, 2015 through January 11, 2016. Featuring *retablos* and *ex-votos* from the private collection of the Giffords family, this exhibition explores the material expressions of petition and gratitude found on painted wood and tin works within the Mexican folk religious tradition.

**Nancy Odegaard** is undertaking research on early restoration methods for pottery as an Honorary Professor at the University College London- Institute of Archaeology in April, and then in Rome as a Fellow at ICCROM in May. She was a presenter at the British Museum Human Remains Workshop 2015.

While Nancy is away on sabbatical the conservators at the Arizona State Museum



(ASM) remain busy with a number of ongoing projects. In February, **Teresa Moreno**, in collaboration with **Bruce Kaiser** and **Nathan Davies** from Bruker Elemental, coordinated a pXRF training workshop for University of Arizona staff and students. Teresa did pXRF analysis and treated 35 metal *milagros* and *ex-votos* from ASM's collection that were included in the *Intimacy of Faith* exhibition.

In March, Teresa taught the BACC Focus on Collections Care workshop on the Care of Metal Objects in Seattle. In addition, she continues her environmental study as part of the NEH Saving Cultural Heritage Collections Planning Grant funded project to design a new climate controlled storage vault for the museum's photographic collections.

Teresa and **Christina Bisulca** have been working together to test and identify materials proposed for use in the construction of an upcoming exhibition highlighting ASM's Save America's Treasures designated collection of Southwestern American Indian basketry.

Christina continues her research on the use of lead minerals on Hohokam artifacts (950-1200 AD), and has recently started a new project for a technical study of the inlay and binding material on a fragment of an ancient Egyptian senate board game in ASM's collections.

**Marilen Pool** continues her work with the archaeological perishables collections as part of the ASM Basketry Project, most recently inventorying and re-housing the botanical specimens. She is also working on a collection of folk art and ceramic pieces for private clients.

**Sasha Stollman** is currently carrying out a three month contract at the ASM and is working with Marilen on the Basketry Project. Her first charges are 140 mini and micro baskets representing a range of SW tribes, weaving styles, and materials. She is thrilled to have the opportunity to contribute to the inspirational lab at 'Basketry Central', focusing intensively on such an exciting

collection in the land where these objects originated. Following this contract, Sasha will spend some time travelling around the Southwest before returning to New Zealand where she provides conservation advice and treatment for heritage institutions and archaeologists.

**Gina Watkinson** and **Brunella Santarelli** are working on the conservation, documentation, and packing of hundreds of objects originally excavated during the University of Arizona archaeological field school excavations at Grasshopper Pueblo in preparation for their repatriation to and reburial in May. Gina is also busy overseeing daily lab activities related to the Basketry Project and various exhibitions and loans, as well as the work of students and volunteers, while also giving tours of the lab to visiting scholars and museum donors.

Gina and **Skyler Jenkins** continue their work on ASM's IPM program, skillfully documenting and identifying various unwanted museum visitors of the insect variety. Skyler continues her seemingly unending treatment reassembling a single prehistoric ceramic jar from hundreds of fragments found as surface finds during a field survey at the ASM Rock Art Ranch archaeological field school.

*Regional Reporter:*  
Dana Senge

### **Hawaii**

**Kent Severson**, conservator at Shangri La, will be recognized with a Preservation Honor Award at Historic Hawai'i Foundation's 2015, 41st Year Preservation Honor Awards Ceremony on May 29, 2015. The Honor Awards will be presented to the Doris Duke Foundation for Islamic Art, Mason Architects, Inc., David

Kemble Exhibit Design Services, Heath Construction Services, Constructors Hawai'i Inc., PET Engineering, Robert Marcos Inc., and Lance Higa Painting.

The project is being awarded for the Mughal Suite restoration at Doris Duke's Shangri La. Built in Honolulu, Hawai'i between 1936-1938, Shangri La overlooks the Pacific Ocean and Diamond Head, and houses Doris Duke's collection of Islamic art. The Mughal Suite is Shangri La's cornerstone - a bedroom and bathroom that Doris Duke commissioned architect Frances Blomfield to design while on her 1935 honeymoon in Delhi.

**Rie** and **Larry Pace** have been kept rather busy over the past year and a half with paintings from the Honolulu Museum of Art (formerly the Honolulu Academy of Art) for shows at the museum and for paintings traveling to other museums. The paintings were works by Jean Charlot, Grace Hudson, Jules Tavernier, Georgia O'Keeffe, Joe Goode, Shirley Russell, Genevieve Lynch, Madge Tennent, Gene Pressler, D. Howard Hitchcock, Lionel Walden, and Childe Hassam, to name a few. One of the larger works was a mural in acrylic by Jean Charlot made up of eight 4' x 8' masonite panels. Corporate and private clients have also contributed to keeping them busy.

**Dawne Steele Pullman** is in Asia working with portrait paintings that cover a range of styles, artists, and locations from Manilla, USA, Hong Kong, and Paris. They included the first portrait done of a Chinese merchant in the Philippines (1868), an early Picasso of a little girl (1907), the Chancellor of Hong Kong University (1932), and an ancestor painting by Shao Fan (1989). Having attended **Richard Wolber's** new cleaning methods workshop in London last year, she is having every opportunity to apply what she has learned!

University of Hawaii at Manoa Library Preservation Department just completed another portion of a FEMA funded project to stabilize culture materials



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## Regional News, continued

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from Hulihee Palace in Kona on Hawaii Island. 19<sup>th</sup>-century *kapa moe* (sleeping *kapa*), feather *kahili*, photographs, prints, and books were damaged when the tsunami generated by the 2011 Japan earthquake flooded their storage area. Daughters of Hawaii (the non-profit group that manages the palace) received FEMA funding and contracted the University.

The *kapa* was treated last year by conservator **Mary Wood Lee** and cultural practitioner **Moana Eisele**. This February-March, conservator **Alexis Aldart** and cultural practitioners **Mele Kahalepuna Chun** and **Kawika Lum** worked together to stabilize four small feather *kahili* and a large box of branches from dismantled *kahili*. All of the *kahili* had been damaged prior to the tsunami and the project goal was to treat them so that they will be a resource for scientists, historians and cultural practitioners to study. An open house held in Honolulu invited the community to get close and examine the *kahili*. Great discussions ensued as people exchanged ideas with Ms. Aldart and Ms. Chun. The final round of materials for conservation will be the photographs, prints, and books. **Seth Irwin**, Preservation Department Paper Conservator, will be working on this material.

**Thor Minnick** recently treated several pieces of Monarchy Period furniture for Washington Place, the former residence of Queen Lili'uokalani, which later became the official residence of the Governors of Hawai'i until 2008. He recently returned from attending the Modular Cleaning Program workshop taught by **Chris Stavroudis** at **Donna Williams'** studio in Hollywood, CA. Thor very much looks forward to implementing all of the wonderful information he learned. He is currently treating an early *koa* bench made by Henry Weeks for a private client.

*Regional Reporter:*  
D. Thor Minnick

### Los Angeles

**Ozge Gencay-Ustun's** maternity leave ended in late April and she returned to her job at the Autry National Center.

There have been lots of additions to the UCLA Library Preservation Services team for the New Year! **Consuela (Chela) Metzger** came onboard as head of the UCLA Library Conservation Center after working several years as associate faculty at the Winterthur/University of Delaware program in art conservation as conservator of library collections. Chela is excited to return to Los Angeles, having worked as project conservator at the Huntington Library in the late 1990's.

**Yasmin Dessem** also started in the New Year as the new audiovisual preservation specialist for UCLA libraries. Yasmin holds MA degrees in art history and in moving image archive studies, as well as a certificate in film restoration from the FIAF Film Restoration Summer School at L'Immagineritrovata in Bologna. She previously managed preservation of both digital and film elements for new feature releases for Paramount Pictures. While at Paramount she oversaw migration projects and recommended new policies to reflect evolving technologies and long term preservation needs.

In March, conservation technician **Anna Shepard** joined the team as part of a grant-funded project to stabilize historic maps and atlases from the UCLA special collections. Anna formerly worked as a conservation technician at the Huntington Library in San Marino, CA, and is a graduate of the North Bennet Street Bookbinding program with a wide variety of experiences with community based craftwork from printmaking to carpentry. Yasmin, Chela, and Anna join the head of preservation services **Dawn Aveline**, collections conservator **Wil Lin**, and collection care staff **Leo Gonzalez** and **Pat Cramer** as part of the preservation services team.

**Tania Collas** and **Elizabeth Drolet** recently prepared the Natural History Museum's 1915 Stutz racing car for an

exhibit loan coinciding with the car's 100 year anniversary. The famed Stutz No. 8 was driven to many victories by Earl Cooper between the years of 1915-1918. The conservators are also planning the disassembly and relocation of the museum's 1924 Douglas World Cruiser, a single-engine two-seater biplane known as the *New Orleans*. The *New Orleans* is one of the two surviving Douglas World Cruisers that were the first airplanes to circumnavigate the globe in 1924.

LACMA paintings conservation head **Joe Fronek** and his staff, along with help from textiles and objects conservators, recently completed the restoration of a newly found work by the 18<sup>th</sup>-century colonial painter Miguel Cabrera. The painting comes from a set of sixteen casta paintings and was originally created as a scroll, still retaining its top frame cornice and scroll bar. While remarkably well preserved, distortions caused by past rolling required relaxation and flattening. After the painting was restored it went on view in LACMA's 50<sup>th</sup> Anniversary exhibition.

**Carolyn Tallent** and **Susanne Friend** recently completed treatment of seven large paintings from the National Park Service collection at Manzanar National Historic Site. The paintings were done by internee artists and depict the landscape of the surrounding mountains and Owens Valley. Three of the paintings are now on exhibit at the museum there, and may be part of an exhibition at the Japanese American National Museum in the future.

**Gene Karraker** has been treating frames for the upcoming exhibition "Louis Style: French Fames, 1610 – 1792" for which he is also a co-curator. Drawn from the J. Paul Getty Museum's substantial collection, this exhibition presents a survey of exquisite carved and gilded picture frames from five periods: Louis XIII, Louis XIV, Regence, Louis XV and Louis XVI. It opens September 15th, 2015 and closes January 3rd, 2016.

**Arlen Heginbotham** travelled to the Philadelphia Museum of Art in April

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## Regional News, continued

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and again to the Frick Collection in June to give three-day intensive workshops on quantitative XRF of copper alloys. The workshops focused on overcoming the technical challenges of acquiring reproducible results by using open source fundamental parameters software and a newly available common standard set. Discussions also addressed the appropriate role of alloy analysis within the larger context of technical and art historical investigation.

**Marc Harnly** and **Sarah Freeman** got a nice mention in the LA Times for their contribution to the exhibition catalogue "Light, Paper, Process: Reinventing Photography" in which "The question of how the contemporary works were made...is deftly addressed in the catalog's technical notes on each artist...They explain process, but they don't explain away the intriguing and idiosyncratic explorations these artists perform with their materials and methods..."

*Regional Reporter:*

Virginia Rasmussen

### New Mexico

Conservation Solutions' recently completed projects include the assessment and treatment of a zinc J. W. Fiske Civil War Infantryman monument in Canton, MA, the assessment and restoration of a cast stone fountain statue in Miami, FL, and the conservation treatment of a bronze fountain and lanterns at the US Capitol in Washington, D.C. Current ongoing projects include the treatment of several Army Museum artifacts including cannons and tank barricades faced by soldiers during D Day, assessment of the Kennedy Center building façade, and laser cleaning of the U.S. Capitol north exterior in Washington, D.C., the assessment of a large number of artworks for Alberta, Canada, and treatment of a dozen monuments at Arlington Cemetery in Virginia.

Recent achievements of the CSI team include AIC professional associate status recognition for **Elizabeth Beesley**, **Kelly Caldwell**, **Lindy Gulick**, and **Caitlin Smith**, and conservator status for **Caroline Guay** with the Canadian Association of Heritage Professionals. CSI conservators have presented papers at six conferences recently. Their article "Restoration of the Aluminum Night Doors and Windows at the Robert F. Kennedy Department of Justice Building, Washington, D.C." will be included in the upcoming publication *Aluminum: History, Technology, and Conservation* to be released by the Smithsonian Institution Scholarly Press.

In October 2014, **Brittany Porter**, a NMSU museum conservation program graduate student, wrote a State and National Register nomination for the Peter and Henriette Wyeth Hurd house and studios in San Patricio, NM, which was unanimously accepted by the Cultural Properties Review Committee. The property is now listed on both the State Register of Cultural Properties and the National Register of Historic Places. Through her research for the nomination, she learned about Peter and Henriette Wyeth Hurd's artistic style and their contribution to Southwest art.

*Regional Reporter:*

Silvia Marinas-Feliner

### Pacific Northwest

**J. Claire Dean** has been back to one of her favorite institutions, the Rock Art Research Institute, University of the Witwatersrand, Johannesburg, South Africa, where she is overseeing the conservation of works by the South African modernist painter Walter Battiss, which are part of the Institute's archive. The care of this material, as well as an upcoming exhibition of some of it, has been funded by the Bank of America's Art Conservation Project. Claire is also delighted to announce that her Kickstarter campaign to raise funds for a semi-permanent shelter for a Native

American story pole awaiting restoration was successfully funded on April 1st - no joke!

**Kristen Kern** staffed The American Institute for Conservation Collections Emergency Response Team (AIC-CERT) hotline for the month of April. AIC-CERT is a group of trained volunteers that responds to the needs of cultural institutions during emergencies and disasters through coordinated efforts with first responders, state agencies, vendors, and the public.

Royal British BC Museum conservators are in the final stages of preparing artifacts and records for their Gold Rush exhibition opening in May 2015, with **Lisa Bengston** organizing the conservation work and record keeping for over 500 objects.

**Colleen Wilson**, with the assistance of **Kjerstin Mackie**, has been working for over six months on one particularly distressed dress from the Gold Rush era, garnering much web site and media attention for the project. We are fortunate to have the assistance of an intern from Paris, **Manon Sauvage**, as well as contractor **Barry Byers**, both assisting **Betty Walsh** in the archives conservation lab. Thanks as well to **Rachel Stark**, recent Fleming College intern, for her work on the Gold Rush project.

**Kasey Lee** has had the good fortune to travel to Bogota, Colombia, to courier borrowed artifacts from the Museo del Oro. **George Field** has been assisted by contractor **Carl Schlicting**, producing mounts for the exhibition, including an oversized cradle for the 100 Kg million dollar gold coin that will arrive from the Royal Canadian Mint.

Throughout this all, **Kay Garland** packed and travelled with a loan of Emily Carr paintings and sketches to the Dulwich Gallery in London and the Art Gallery of Ontario.

*Regional Reporter:*

Corine Landrieu



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## Regional News, continued

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### Rocky Mountain Region

**Hillary Jones** is in residence as assistant conservator working on rare books in the McCracken Library of the Center of the West. She comes to them from Denver having recently graduated from West Dean College in southeast England. Hillary will be returning to Denver to work at Norlin Library at CU Boulder.

**Beverly Perkins**, division director for museum services at the Center of the West will be conserving the Winchester 1873 firearm that was found by park rangers in Great Basin National Park in Utah. According to the Winchester records at the Center of the West, the firearm left the factory in 1888 and may have been left outside, leaning against a Juniper tree for 100 years.

**Carmen Bria** of the Western Center for the Conservation of Fine Art (WCCFA) has been busy examining and treating murals mostly in Oklahoma. He just completed the on-site treatment of a large painting for the Oklahoma History Center and has been working with the BIA to save two large Native American murals from a soon to be demolished building at the Riverside Indian School in Anadarko, Oklahoma. **Yasuko Ogino** has commenced the treatment of one of two New Deal era murals by Audre Yates. Those and a third mural by an unknown artist from Wilson Elementary School in Oklahoma City were removed from walls in the school by Carmen in October. Carmen also treated a mural on site at that school by artist Zyta Laky.

**Camilla Van Vooren** returned to Little Rock, Arkansas in December to treat a large painting by Andrew Wyeth in a private collection. Yasuko and Carmen travelled to Bentonville to survey paintings in the collection at the Chrystal Bridges Museum. Camilla also recently treated a large abstract expressionist painting by Ethel Schwabacher for an upcoming exhibition at the Denver Art Museum.

**Courtney Murray**, Samuel H. Kress fellow in objects conservation at the

Denver Art Museum (DAM), continues the conservation treatment and technical study of a set of six 18th-century painted and gilded wooden sculptures from Ecuador. The small devotional figures depict the three Magi and their respective horses. X-radiographs are informing the structural stabilization of the heavily insect-damaged sculptures.

**Gina Laurin** has completed a range of treatments on various objects including Japanese ceramic vessels and a Chinese sculpture from the Asian collection, and Mic Mac quillwork boxes and Hopi katsinas from the Native Arts collection. On behalf of the DAM, she completed the IMLS Heritage Preservation Health Index 2014: A National Collections Care Survey.

**Kate Moomaw** and mountmakers, **Steve Osborne** and **Nick Donaldson**, prepared two very life-like sculptures, *Linda* and *Artist and Model*, by John De Andrea for the upcoming exhibition, *Starring Linda*. Modifications were made to their presentation mounts to ensure safe exhibition.

**Eddy Colloton**, a graduate student from NYU's MIAP program will be joining the DAM in early June to begin a summer electronic media conservation internship focusing on the American Institute for Graphic Arts (AIGA) Archive.

**Allison McCloskey** and Denver Art Museum Mellon textile fellow, **Julie Benner**, have been diligently treating and stabilizing numerous tapestries from the collection, ranging in age and origin, for the upcoming exhibition *Creative Crossroads*. **Pam Skiles** attended the Modular Cleaning Program workshop in Los Angeles in February.

After ten years as regional reporter for the Rocky Mountain Region, **Paulette Reading** has decided to step down and pass the baton to **Julie Parker**! Thank you, Paulette for your ten years of service to WAAC! Thank you Julie for enthusiastically taking on this important role!

*Regional Reporter:*  
Paulette Reading

### San Diego

Carli Fine Art Conservation welcomes **Michael Mollgaard** onto their staff as conservation technician. The studio and fieldwork schedule is busy and his expertise and enthusiasm is a great boon to the team. **Sabrina Carli**, objects conservator, recently completed the extensive treatment of Robert Arneson's *Shouldering the Load: A Portrait of Joe Bonino* at the Palm Springs Museum of Art. The biographical sculpture incorporates the artist's trademark large-scale ceramic portraiture with an assemblage of found, ephemeral objects. It is now installed in the Chase Galleries at PSAM. She is currently researching new technology for the conservation of art incorporated with water features with a view to improving the conditions for several important fountain works.

"Saving Time: A Guide to Conservators," *San Diego Home and Garden Magazine*, January, 2015. This brief, but colorfully-illustrated article is intended as an introductory guide to the concept of art conservation for people with collections of art. The article discusses when owners of works of art, who may not be familiar with the process of conservation, should consider consulting a conservator, as well as the purposes, goals, and limitations of conservation. The correct approach to finding a qualified conservator is also discussed. Conservators consulted for the article included **Janet Ruggles**, executive director of the Balboa Art Conservation Center, **Alexis Miller**, chief conservator of paintings at BACC, **Sabrina Carli**, objects conservator in private practice, and **Frances Prichett**, paper conservator in private practice.

*Regional Reporter:*  
Frances Prichett

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## Regional News, continued

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### San Francisco Bay Area

The Asian Art Museum welcomed its new head of conservation, **Kathy Z. Gillis**, in November, 2014. Kathy is returning to the bay area where she worked previously at the Oakland Museum Conservation Center (1995-1997) and as a pre-program intern at the DeYoung Museum (1989-1990).

**Mark Fenn** and **Colleen O'Shea** (third-year Buffalo State fellow) are analyzing and treating a group of Korean lacquer objects for an upcoming exhibition at the museum. **Shiho Sasaki** has been working on the spring rotations of the museum's permanent collection and has also started collaboration on research of thangkas with conservators at the Cleveland Museum of Art.

**Denise Migdail** has provided interactive and didactic information for the museum's Woven Luxuries exhibition, which continues through November 1, 2015. The exhibition features Indian, Persian, and Turkish velvets from the Indictor collection. She will also be participating in the tips session for the Textile Specialty Group at AIC in Miami.

Zukor Art Conservation has welcomed a new staff: **Laura Moeller**, **Ella Milliken Detro**, and **Emilie van der Hoorn**. Laura started in February, after completing a one year IMLS Fellowship at LACMA, working on their photography collection. She has previously worked at Graphic Conservation in Chicago with both paper and photographs. She is now associate paper conservator at ZAC. Ella is the new office manager and a dancer in the South Indian Bharatanatyam tradition. She has been an administrative and studio assistant to both fine art painters and jewelers in the bay area. Emilie is working both at ZAC and the Asian Art Museum, helping Shiho Sasaki with conservation and exhibitions. When she is not at the Asian or volunteering at the SF Public library preservation lab, she plays squash and paints.

**Karen Zukor** started the year by consulting with the Alaska State Museum, archives and library staffs, on

their new facility which will open in 2016 in Juneau. She plans to return to India in October for the fifth time, to work on a centuries-old manuscript.

The FAMSF objects lab recently installed *A Princely Pursuit: The Malcolm D. Gutter Collection of Early Meissen Porcelain* at the Legion of Honor, and *Embodiments: Masterworks of African Figurative Sculpture* at the de Young. **Lesley Bone's** essay, "On and Below the Surface: A Conservator's View of African Sculpture," is featured in the *Embodiments* catalogue.

**Catherine Coueignoux's** article, "Conservation of Photodegraded Asian Lacquer Surfaces: Four Case Studies," was recently published in the JAIC. She also completed, in collaboration with the de Young's photography department, a narrated, stop-action animation of a Charles Topino mid-18<sup>th</sup>-century marquetry lady's desk (French) to illustrate its moveable components.

**Geneva Griswold** prepared a Shreve silver table setting and Tiffany enamelware for display, and has begun preparations with textiles conservator **Anne Getts** for a conservation-focused exhibition on featherwork.

**Samantha Fisher Li** recently joined **Susan Roberts-Manganelli** in the Art + Science Learning Lab as the objects conservator at the Cantor Arts Center. Samantha is passionate about working with students to encourage interdisciplinary learning and expanding knowledge about our field. She holds a Master of Art Conservation from Queen's University in Canada and has worked at numerous institutions across the U.S. and abroad. Such institutions include the National Gallery of Art in Washington, D.C., the Asian Art Museum, the Fine Arts Museums of San Francisco, and the Colonial Williamsburg Foundation.

*Conservation Issues in Modern and Contemporary Murals*, edited by **Mercedes Sánchez-Pons**, **Will Shank**, and **Laura Fuster-López**, will be published by Cambridge Scholars Publishing in May, 2015. This volume represents a forum for conservators,

conservation scientists, artists, and heritage managers. It includes the voices of many of the different partners involved in the complex task of preserving artworks and contains sections on the vital experience of artists who create murals and are sometimes asked to treat their creations. It contains theoretical reflections on how to deal methodologically with conservation, scientific studies on the identification of constituent materials and/or on the development of procedures for their preservation, the opinions of cultural managers, and the specific experiences of conservators. All of the above must have a voice in the difficult task of preserving such a challenging and changing heritage. The book includes articles in English and Spanish.

*Regional Reporter:*  
Alisa Eagleston-Cieslewicz

### Texas

**Mark van Gelder** recently treated a 16<sup>th</sup>-century Bolognese portrait formerly in the collection of Lord Kenneth Clark. Mark speculates that the reason the portrait (of an architect apparently holding a proportional compass) was of particular interest to Lord Clark is that the painting remains unfinished, although its uncompleted state was not mentioned in the 1984 auction catalogue for the Clark estate, nor was it realized by the present owner of the painting.

*Regional Reporter:*  
Ken Grant



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## Fellowships and Jobs

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### **The National Museum of African American History and Culture and MCI**

Post-Graduate Paintings Conservation Fellowship 2015-2016

The National Museum of African American History and Culture (NMAAHC) of the Smithsonian Institution in Washington D.C. is accepting applications for a one-year post-graduate fellowship in paintings conservation beginning in the fall of 2015. The conservation fellow will be part of an exciting and groundbreaking journey that will culminate in the opening of the new NMAAHC on the National Mall in 2016.

The fellowship provides an opportunity for a recent graduate to gain experience in paintings conservation, including preventive care for artworks in storage and exhibition for the Visual Art Gallery (VAG) of NMAAHC and conservation analysis and treatment in the studios of the Museum Conservation Institute (MCI). The fellow will work under the supervision of the Head of Collections (NMAAHC) and the guidance of Senior Paintings Conservator (MCI).

Responsibilities will include paint analysis, preventive conservation, and treatment of diverse mixed media and single media paintings. The fellow is encouraged to do research on a topic within the category of conservation of modern and contemporary paintings.

#### Qualifications:

A recent graduate of a recognized master's level conservation training program with knowledge and understanding of: conservation principles and practices; conservation challenges of modern and contemporary paintings and the importance of preventive care; organic chemistry and its application in paint adhesion, cleaning and identification; paint aging and deterioration; painting structure and processes; and painting framing, hanging, and handling. An ability to make critical decisions in performing conservation task should be demonstrated by a portfolio. Oral, written, and interpersonal communication skills and the computer and graphic skills are required.

The stipend is \$40,000 plus health insurance benefits, not to exceed \$45,000 total.

Apply for this position at: <https://solaa.si.edu/solaa/SOLAAHome.html>. SOLAA is the Smithsonian's online system to apply for internships, fellowships, and other academic appointments. Applications should reach us no later than May 25, 2015.

Please address all inquiries to Dr. Renee S. Anderson, Head of Collections at [andersonrs@si.edu](mailto:andersonrs@si.edu) or Jia-sun Tsang, Senior Paintings Conservator, [tsangj@si.edu](mailto:tsangj@si.edu), Tel: 301-238-1231.

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### **The Saint Louis Art Museum**

Paper Conservator

The Saint Louis Art Museum seeks a collegial, collaborative, and energetic paper conservator to join its dynamic conservation team. SLAM's collection of works in the prints, drawings, and photography collection spans centuries with numerous works by both Eastern and Western masters.

This Individual will report to the head of conservation and will supervise the Conservation Technician and grant-funded Interns. An ideal candidate will have a broad and solid foundation in paper conservation techniques and be capable of collaborating with other conservation staff to solve unique preservation challenges. A successful candidate will delight in the opportunity to oversee the conservation of masterworks and will have the attention to treatment and general preservation details that such works require. The candidate will also have an excellent sense of project management and conscientious observations of deadlines.

As the museum's conservator of paper, the candidate will be expected to plan, supervise, and participate in the conservation and restoration of works on paper in the collections of the Saint Louis Art Museum; to advise the Museum generally on the care of these collections; and to assist in determining conservation policy for the Museum.

#### Duties

Periodically examine and appraise physical condition of the Museum's permanent collections:

Assess deterioration and damage, and problems involved in remedial treatment. Design and carry out conservation treatment in consultation with the Curator of Prints, Drawings, and Photographs. Provide written and photographic documentation to record condition of objects, treatments proposed, and treatments performed.

Recommend other Conservators outside his or her field of expertise and review their treatment proposals.

Advise on preventative maintenance in the Museum as a whole in the areas of environment, handling, storage, and installation.

Examine works on paper prior to acquisition to aid the Curatorial staff in determining their physical and aesthetic condition, as well as their authenticity.

Examine works requested for loan to determine suitability for travel and to document their condition, and advise the Registrar and others on any special packing and shipping considerations.

Supervise the technician assigned to the Department of Prints, Drawings and Photographs, and in particular, review the design and fabrication of mats and frames for the collection. Advise the registrar and curators on the installation, storage, and maintenance of works on paper in the collection.

Administer the paper conservation lab: Assist in preparing, monitoring, and controlling the departmental budget Recommend acquisition of new equipment and monitor and order conservation supplies.

#### Qualifications

Qualified applicants must have a degree from an accredited conservation program or its equivalent and a minimum of 8-10 years conservation experience in paper conservation is required. Prefer at least two years' experience in administration and staff supervision.

The above statements of this job description describe the general duties and level of work performed by employees assigned to this position.

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They do not claim to describe all of the functions of this position. Employees may be assigned other duties and the essential functions may change or be changed from time to time.

The Saint Louis Art Museum ([www.slam.org](http://www.slam.org)) is one of the top ten comprehensive art museums in America, based on the scope and quality of its collections. The museum has four modern conservation labs in the areas of objects, paintings, paper, and textiles, in addition to an active Print Study Room.

Applicants must apply online at Paper Conservator - Apply at [slamcareers.org](http://slamcareers.org). The position will remain open until filled.

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### **The Metropolitan Museum of Art**

Assistant/Associate Paper Conservator  
Six month position

The Metropolitan Museum of Art, one of the world's finest museums, seeks an Assistant/Associate Conservator in the Paper Conservation Department.

This position undertakes a wide range of conservation procedures on Western historic, modern and contemporary drawings, prints; miniatures on vellum, paper and ivory; manuscript illuminations on vellum, Islamic and Indian paintings, paintings on palm leaf (individual leaves and bound albums), wallpaper and other materials that are under the jurisdiction of the Paper Conservation Department.

Conservation procedures include treatment, examination, evaluating new acquisitions, condition checking of works entering and leaving the Museum, surveying of works in the collection, analysis and identification of materials and structure, by chemical and instrumental means, to determine condition, authenticity, and proposals for treatment and housing.

In addition, all works conserved are photographed and electronically documented, discussed with supervisor prior to treatment and initiate and assist with approved research supporting technical art history, conservation treatment, and preservation.

Ancillary conservation procedures include but are not limited to laboratory management tasks undertaken with other members of the department, such as organization and maintenance of conservation supplies, equipment and chemicals according to established safety procedures, preparing chemical solutions, consolidants and adhesives for treatment, obtaining product information, testing materials for treatment, and preparation of materials for laboratory workshops.

This full-time position is scheduled to end on December 31, 2015.

#### Primary Responsibilities and Duties:

- The examination, analysis, documentation and treatment of assigned works of art.
- Carrying out condition examination of works to be loaned, or on loan, or to be acquired.
- Assisting in the management and maintenance of the laboratory including the preparation of chemical reagents and solutions.
- Assisting in the housing and hinging of works of art.
- Other related duties

#### Requirements and Qualifications:

##### Experience and Skills:

- Demonstrated excellence in performing complex conservation treatments.
- Excellent manual skills.
- Ability to maintain attention to detail and to sustain focus on long term projects. High quality work as well as efficient use of time is valued.
- Working knowledge of chemical and material sciences.
- Knowledge of preservation standards for archival matting and housing, for environmental conditions.
- Ability to use digital cameras and electronic resources in documenting treatment.
- Ability to devise conservation strategies based on knowledge of materials, chemical processes, and aesthetic and ethical considerations.
- In depth knowledge of the history of paper, papermaking, artists' materials and art history.
- Ability to work effectively and constructively both independently and as part of a team, be attentive and engaged with laboratory activities.

- Demonstrated interest in works of art, their fabrication and history, and aesthetic criteria in relation to individual's conservation projects.
- Excellent verbal communication skills, excellent written communication skills.
- Strong organizational skills, time management skills, including the ability to establish priorities, meet deadlines and achieve goals.
- Ability to work cooperatively at all times with a large group of conservators and curators.
- Willingness to accept supervision and guidance.
- Attentiveness to conservation issues taking place in the laboratory.

#### Knowledge and Education:

- A graduate degree in Conservation (a Masters or Certificate/Masters) from an accredited university, including course work in chemistry and material science.
- Specialization in paper conservation in graduate level conservation studies, and in subsequent employment.
- A minimum of two years post graduate internship or fellowship in paper conservation, or a minimum of five years of professional paper conservation experience, preferably in a museum conservation laboratory.

Please send cover letter, resume, and salary history to [careers@metmuseum.org](mailto:careers@metmuseum.org) with "Assistant/Associate Conservator/Paper Conservation" in the subject line. Please submit by June 5, 2015.

The Metropolitan Museum of Art provides equal opportunity to all employees and applicants for employment without regard to race, color, religion, creed, sex, sexual orientation, national origin, ancestry, age, mental or physical disability, pregnancy, alienage or citizenship status, marital status or domestic partner status, genetic information, genetic predisposition or carrier status, gender identity, HIV status, military status and any other category protected by law in all employment decisions, including but not limited to recruitment, hiring, compensation, training and apprenticeship, promotion, upgrading, demotion, downgrading, transfer, lay-off and termination, and all other terms and conditions of employment.



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## Technical Exchange

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### Dritz Petite Press™ Mini Iron

This small tacking iron (found at a craft store) has proved to be a very useful general purpose tool, and is exceptionally cheap, \$22 if you buy it from Amazon.com.



The heating plate is a nice size, 2 3/8" by 1" and 1/8" thick, and has an oval shape with a pointed tip. It has a comfortable handle and is very lightweight. The digital controls are conveniently placed, as is the wire flip-down stand. It also has a generous 9 foot cord.

The most notable feature is that you can rotate the head to four different angles.

It has four temperature settings, all rather hot, though I'm not sure I trust those temperatures. I used mine to gently warm the reverse of a canvas and it worked fine at the lowest setting; to warm / dry through a blotter I used level 2. I tested it with BEVA film, and it was only at setting 3 that it seemed to be too hot to work with comfortably.

I was so impressed with it that I ordered four and gave one to two colleagues to test. One especially liked it for strip lining. He particularly liked that the thin heating plate allowed him to work close in the corner of an unflattened tacking edge without heating up the adjacent paint surface, and that it blinks and beeps at temperature when adjusted up or down.

It may be that quality control is an issue. The reviews on Amazon (from crafters) were overwhelmingly positive, but the few negatives said it didn't heat properly. And I can't vouch for how long it may last. I intend to keep the extra two as backups, although mine is working fine. Incredibly well designed for \$22.

*Carolyn Tallent*

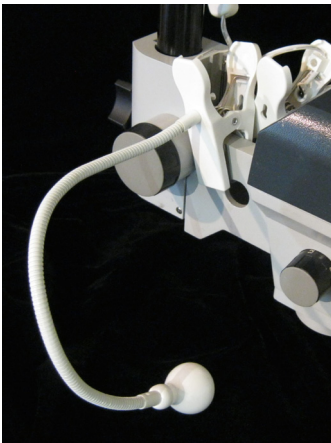


### IKEA JANSJÖ LED Clamp Spotlight

This small bright lamp is lightweight, easy to move, and clamps firmly in place. I have used it both as a task lamp and as lighting for my microscope. The 16" arm is easily adjustable and it has a cord length of almost 12 feet. The LED light source consumes up to 85% less energy and lasts 20 times longer than incandescent bulbs.

JANSJÖ LED Clamp Spotlight \$14.99 Clamping range up to 1 1/4"  
Warm white (2700 Kelvin)  
LED life approx. 20,000 hours.

*Chris Stavroudis*



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## WAAC Publications

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### 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: \$8.85**

(\$6.60 copy for orders >10 copies)

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### 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.

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**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

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# A Tale of Two Citrates (actually four)

by Chris Stavroudis

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This has bugged me for some time: conservators buying triammonium citrate (or diammonium citrate or ammonium citrate) rather than purchasing citric acid and adjusting the pH by themselves.

Please read this carefully: ammonium hydroxide can be added to citric acid to get the **exact same materials in solution** as any of the other more expensive ammonium citrates. Once again: ammonium hydroxide can be added to citric acid to get the **exact same materials in solution** as any of the other more expensive ammonium citrates.

To control the ionic species in a citrate solution, one simply sets the solution pH. Using a calibrated pH meter is best, but in this case, pH papers will work well enough.

With citric acid one also has the option of using sodium hydroxide rather than ammonium hydroxide to get equivalent solutions, the difference being the counter ion – ammonium versus sodium ions. If the citric acid is adjusted to a given pH with sodium hydroxide or ammonium hydroxide, the two solutions will have the same combinations of citrate ions in solution at that given pH.

For example, when we dump triammonium citrate into water at, say 2%, the solution will have a pH around 7.4 or 7.5. (The MCP says the pH will be 7.5.)

At a pH of 7.5 the following species will be in solution at the following percentages:

citrate <sup>3-</sup>	92.63%
H-citrate <sup>2-</sup>	7.36%
H <sub>2</sub> -citrate <sup>-</sup>	0.01%
and H <sub>3</sub> -citrate <sup>0</sup> (free citric acid)	practically 0%.
(This, again, from the MCP.)	

Using 2% citric acid and titrating to 7.5 with one of the hydroxides will yield the exact same results.

The reasons for my being bugged about the use of an ammonium citrate salt rather than rolling your own are four fold: cost, variation of molecular weight, control, and change in properties with age.

## First - cost

Here are the prices for the different forms of citrate. All are from Fisher Scientific, their Arcos Organics line and 98% pure (or better if there is no 98%). I've listed the cost per 250 grams and the cost per mole.

Triammonium Citrate	\$65.30 / 250g	\$63.52/mole
Diammonium Citrate	\$20.85 / 250g	\$18.86/mole
Ammonium Citrate	\$38.05 / 250g	\$31.83/mole
Citric Acid (anhydrous)	\$14.30 / 250g	\$10.99/mole

Even better, let's do some online shopping. On Amazon.com (for example) we can purchase food grade citric acid for \$6.50/lb. That is:

Citric Acid (anhydrous, food grade)	\$3.57 / 250g	\$2.74/mole.
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## Second: - variation of molecular weight

Because the ammonium ion has a molecular weight of 17 there is a difference in the molecular weight between citric acid and tri-, di-, and ammonium citrate. If we use each of these expensive salts at 2%, the effective (i.e. citrate) concentrations will be (I've also listed the number of grams per 100 mL of each salt to make a 2% citrate solution):

Triammonium Citrate	0.082M (2.5g/100mL)
Diammonium Citrate	0.088M (2.36 g/100mL)
Ammonium Citrate	0.096M (2.17g/100mL)
Citric Acid	0.104M (2g/100mL)

## Third - control

Whenever possible, I like to know what I'm doing. So I like to know and control the pH of my cleaning solutions. If I dissolve triammonium citrate into water at the kind of concentrations we typically use, the pH will be around 7.4 or 7.5. But unless you are actually measuring the pH, you can't be sure, especially considering the evaporation issue discussed below.

(As a side note, citrate solutions are always chelating agents. They also function as buffers from pH 2.2 – 7.3. Above a pH of 7.3 you will want to add a separate pH buffer to keep the solution pH constant as the cleaning progresses.)

## Fourth - change in properties with age

The powder form of the ammonium salts have a weak ammonia smell. This tells us that ammonium ions are evaporating away and being replaced with hydrogen ions on the citrate salt. One published recommendation is to replace the ammonium salts of citric acid after two years when kept dry and tightly sealed.

Once your formerly tightly sealed and dry powder is dissolved in water, the ammonia evaporates more readily. And as it evaporates, the pH will go down. To what degree does this change the pH of the solution? I don't know, but it will decrease. The longer the solution is left sitting out uncapped, the more the composition will change; the more the pH will decrease.

However, if you make your citrate solution with sodium as the counter ion by setting the pH with sodium hydroxide, the pH will not change at all as sodium ions are not volatile. (Hence the use of sodium salts in the MCP solutions. They last forever.)

I hope I have made the case for making your own citrate solutions rather than squandering your money (or your institution's money) on materials that will change pH with age and not give you the kind of control of your cleaning solution's composition you probably thought you had.

[Should you want to use a pH meter to make your own solutions and are not familiar with using one, you might want to view the GCI video prepared for the CAPS workshops, "Calibrating Conventional pH Meters" at [youtube.com/watch?v=9Ktlz0uw6kw](https://www.youtube.com/watch?v=9Ktlz0uw6kw)]

I feel so much better now.

# A Guide for Native American Objects with Glass Deterioration

by Robin O'Hern and Kelly McHugh

## Introduction

Virtually every culture group in North America used or is using glass beads to create designs for adornment, to communicate identity, or for protection and spirituality. The beads themselves and the designs they create are essential parts of the objects that contain them. Glass beads affected by glass disease can have an altered visual appearance or structural damage that causes partial or complete loss (fig. 1).

The preservation of the object and its beaded designs is an integral part of maintaining and communicating the cultural knowledge associated with that object. Unlike other items of cultural patrimony where degradation is inherent or accepted, retention of the beaded designs and coloration is a cultural necessity. Whether it is a beaded dress, baby carrier, gun case, or bag, without the beads, the object has lost its ability to communicate or protect.

Given the cultural importance of glass beads, how can conservators preserve them and address glass deterioration? This article presents a brief overview of research conducted at the National Museum of the American Indian (NMAI) on deteriorating glass beads and their treatment (O'Hern and McHugh 2014). It will address some of the most frequently occurring questions about glass disease, such as how common it is, what the most susceptible colors are, and what can be done to treat deteriorating beads. Our hope is to improve the preservation of collections with Native American beadwork by raising awareness of the pervasive issue of glass deterioration.

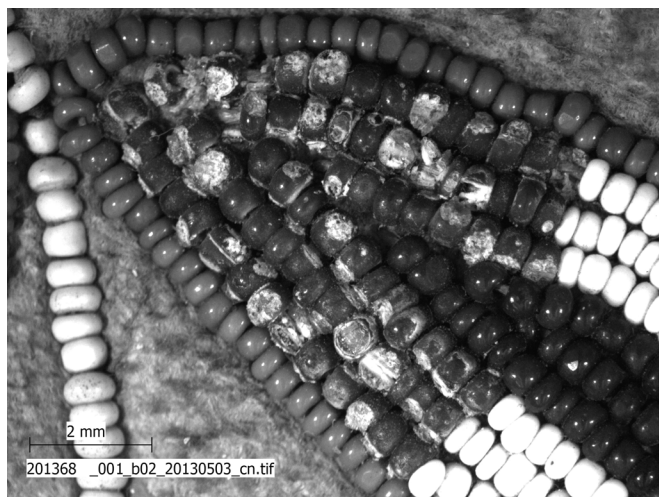


Fig. 1. Image of white heart beads with unstable glass on a glove. National Museum of the American Indian, Smithsonian Institution

## Glass Trade Beads in North America

Beads made from locally sourced or traded natural materials, such as bone, shell or teeth have been used by people of North America for thousands of years. Glass beads imported to North America came from Venice, Bohemia (now the Czech Republic), Holland, England, France, China, and other countries. Glass beads are made

using several different techniques, including but not limited to drawn, wound, mold-pressed, and hollow blown (Sprague 1985; Dubin 2009; Karklins 2012).

The introduction of glass beads exponentially increased the opportunity for broader and more sophisticated visual articulation. In the Plains, glass beads quickly replaced traditional forms of adornment like quillwork, which were laborious and time consuming (Dubin 2009).

The preservation of glass beads is inextricably linked to the preservation of Native American cultural material, and therefore the mechanisms of deterioration and treatment must be examined and well understood.

## What is Glass Deterioration

Scholars and researchers use many different terms to describe unstable glass, including glass disease, glass illness, glass deterioration, sick glass, weeping glass, sweating glass, and crizzling glass.

Glass deterioration begins when hygroscopic components from within the glass migrate to the surface and form salts, leaving behind voids in the glass, which can cause structural damage. Visually, unstable glass will develop a fine network of cracks (crizzling), a white crystalline growth on the surface, aqueous or oily surface droplets (weeping), pitting, or fracturing.

The deterioration of glass beads occurs as a result of the chemical composition of the glass, the use-history of the object on which they are attached, the environmental history of the object, or the substrate (e.g. hide) (Fenn, 1987; McHugh and Carroll 2001; Kunicki-Goldfinger 2008). (fig. 2).

Unfortunately, the process cannot be stopped once it begins, only slowed down by maintaining stable and low relative humidity conditions and removal of the surface salts (Koob 2006; Kunicki-Goldfinger 2008).

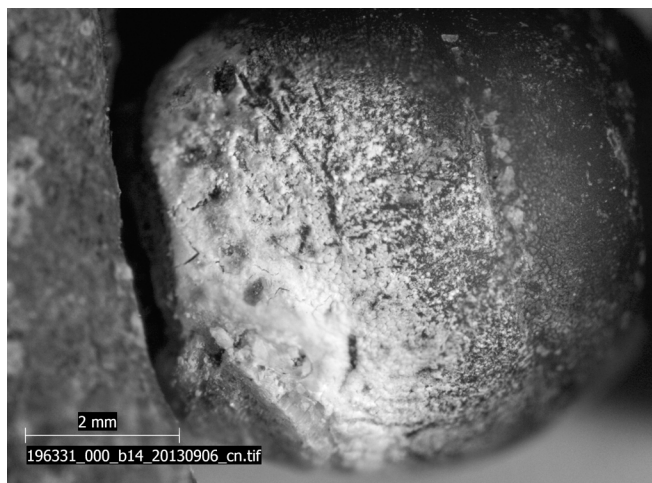


Fig. 2. Detail image of beads developing glass disease where they are in contact with leather on a Plains Breastplate. National Museum of the American Indian, Smithsonian Institution



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## A Guide for Native American Objects with Glass Deterioration, continued

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### How Common is Glass Deterioration?

On average, what percentage of a collection with glass beadwork will have deteriorating glass beads? The published literature was searched for other surveys of deteriorating glass beads and glass collections that assessed percentages of unstable glass. Three published examples of collection-wide glass surveys (Oakley 1990; Cobo del Arco 1999; Fusco and Speakman 2010), and our own survey of records at the NMAI revealed a range between 13.5 – 25% of the collections that are exhibiting signs of deterioration. Our work at the National Museum of the American Indian indicates that 25% of objects at this institution with glass beads and conservation records have a history of unstable glass.

### What Color of Beads are Most Likely to Deteriorate?

We analyzed the data in the conservation records for objects that included the words “glass disease” or “bead disease.” The beads on these objects were summed by color and then the percentage of each color identified as having unstable glass was calculated (graph 1).

The blue beads are much more likely to have a record of glass disease (68%), followed by the red beads (48%) and then black (30%). The information in this graph does depend on the conservators accurately reporting which beads have glass deterioration as well as on their naming each of the colors of beads on the object in their treatment report. Lovell (2006, 37) also found that “certain colors of beads – namely blues, reds, and black – tend to be more susceptible to glass disease.” The composition of these bead colors make them susceptible to deterioration, as all tend to have lower amounts of calcium oxide in their composition, for reasons that depend on the color.

Copper oxide creates different colors in glass, ranging from blue to green. The composition that results in a blue color requires reducing the calcium oxide, therefore rendering the glass susceptible to deterioration (Weyl 1959, 164; in Hancock, Chafe, and Kenyon 1994).

The red beads surveyed tend to be translucent rather than opaque. Their susceptibility to deterioration can be explained by the reduction in calcium oxide that allows the glass to be translucent or transparent.

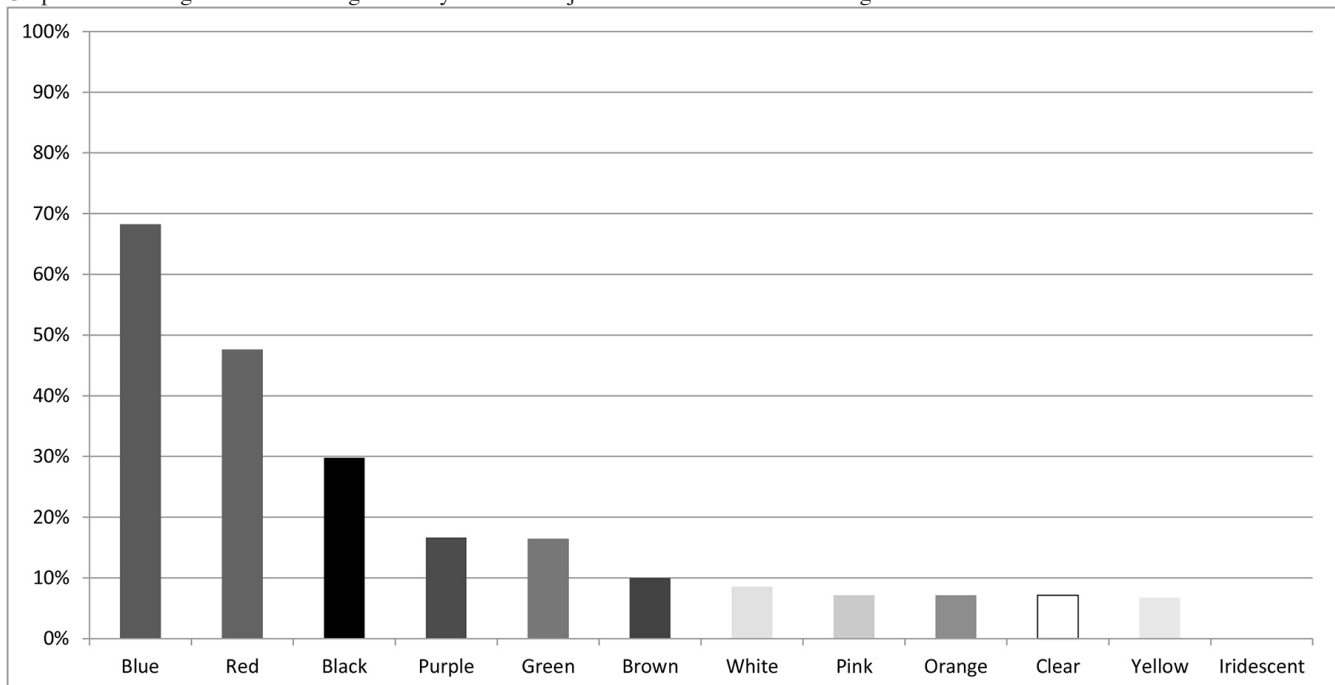
An explanation for the high deterioration rates for black beads is harder to establish but is likely also related to reduced calcium content (Karklins et al. 2002). Further analysis of the unstable and stable glass beads is recommended to improve understanding of the factors leading to their deterioration. (see O’Hern and McHugh 2014 for more information).

### How Do I Determine if Glass Disease is Present?

Visual examination is commonly the first method of recording condition. One looks carefully at the beads, often with magnification, to identify the signs of glass deterioration described above. Unfortunately with visual examination there is the potential to misidentify glass deterioration due to a dusty surface, culturally applied kaolin, or other factors.

We found measurement of the pH on the glass bead surface essential for determining whether the bead has alkaline surface salts present, or culturally applied kaolin, or just a matte surface (Lougheed 1988; Sirois 1999; Lord 2001, 129; Smith 2006; Lovell 2006, 37).

Graph 1: Percentage of deteriorating beads by color on objects with records of unstable glass



## A Guide for Native American Objects with Glass Deterioration, continued



Fig. 3. Top, a Northern Athapaskan Necklace with unstable glass beads that initially appear stable. Bottom a detail from an Anishinaabe (Chippewa/Ojibwa) Man's leggings that appear to be deteriorating but are actually stable.

Matte surfaces with neutral pH may be from manufacture, a sign of previous glass disease damage that disrupted the surface but has not reoccurred, or a result of wear (fig. 3). Alternatively, it can be difficult to see the glass disease present on some beads, in which case an alkaline pH can alert the researcher to its occurrence. Therefore, measuring the pH of all the bead colors on an object is an essential practice.

We used the following technique for measuring pH:

- Cut tiny rectangle of ColorpHast paper (pH 6.5 – 10.0)
- Moisten paper with deionized water
- Tap on towel to draw off excess moisture
- Place and hold on bead for 3 sec
- Evaluate color change of pH paper

The color change – or lack thereof – of the pH paper indicates a surface pH close to neutral and stable glass. A pH of 8 usually corresponds with barely visible surface salts, and a pH of 9 or greater usually occurs when the salts are clearly visible on the bead surface.

### How Do I Clean Unstable Glass?

Clearing surface salts from the glass bead can help to prevent additional deterioration by reducing the pH and removing hygroscopic components. When cleaning Native American beadwork, it is important to consider whether the surface grime is soiling or if it is a traditionally applied material like red ochre or kaolin (a type of white clay), which would not be removed from the object at the NMAI.

Conservators begin the cleaning process with mechanical techniques like vacuuming while brushing or using cosmetic sponges (non-latex polyurethane foam), which are least likely to cause damage (Doyal 2001; Frisina 2004). The next step is the use of water or solvents, which should only be undertaken after testing the surrounding materials for adverse effects. Deionized or distilled water and ethanol have distinct advantages and disadvantages depending on the bead, substrate, and other factors (Table 1). While the glass bead literature strongly recommends using ethanol over water, a 2006 survey of conservators found that most choose water as their cleaning method (Lovell 2006, 62).

We conducted a survey of a group of objects at the NMAI that had been cleaned with water, ethanol, or 1:1 water: ethanol to learn how beads treated with the different techniques re-develop glass disease differently (O'Hern and McHugh 2014).

Twenty-one objects with red beads and 38 objects with blue beads were surveyed to assess their current condition. Each of these objects had a history of glass disease on blue and red beads and a documented conservation treatment that involved cleaning with either water, ethanol, or 1:1 water:ethanol. All of the treatments occurred between 1994 to 2011 in preparation for exhibitions and loans by the NMAI.

The use of water, 1:1 water: ethanol, and ethanol were examined and it was found that while there was no clear frontrunner, beads cleaned with ethanol had the lowest rate of return: 50% of objects with beads cleaned with water had glass deterioration return, 52% of objects with beads cleaned with 1:1 water: ethanol had glass deterioration return, and 47% of objects with beads cleaned with ethanol had glass deterioration return.

When the objects cleaned with ethanol are compared over the same time with the objects cleaned with 1:1 water:ethanol, then the rate of return of glass deterioration for beads cleaned with ethanol decreases slightly to 42%. It should be noted, however, that the rate of return could be influenced by more than just solvent choice alone and likely depends on how clean the beads became, the substrate or sewing material (Carroll and McHugh, 2001), method of manufacture (Sirois 1999, 85), or other factors (O'Hern and McHugh 2014).

Our research does seem to indicate that beads cleaned with ethanol are slightly less likely to re-develop glass deterioration.

## A Guide for Native American Objects with Glass Deterioration, continued

Table 1. Advantages and Disadvantages of Each Treatment Material

Material	Advantages	Disadvantages
Deionized or Distilled Water	Preferred for cleaning vessel glass Effectively removes surface salts (Newton and Davison 1989; Ryan et al. 1996 Oakley 2001; Koob 2006; Smith 2006)	Can cause staining or tide lines on the substrate material Can corrode nearby metal beads May create a micro-environment around the thread facilitating glass deterioration Can break weakened beads through the expansion of the moistened thread (Louheed 1982; Loughheed 1988; Stone 2010)
Ethanol	Does not cause corrosion of metal beads Does not create a microenvironment around the threading material Does not play a role in facilitating bead deterioration May help to solubilize fatty components of surface accretions (Loughheed 1988; Doyal 2001; Lord 2001)	Can displace the moisture in the glass Can reveal the full extent of crack development May solubilize components of the backing material or substrate (Ryan et al. 1996; Koob 2006; Smith 2006)
1:1 Deionized or Distilled Water : Ethanol	Effectively removes surface salts Dries more quickly than water alone May help to solubilize fatty components of surface accretion (Stone 2010; Grabow 2011)	May cause staining May corrode nearby metal beads Can still create a humid microenvironment (Stone 2010)

### How Do I Monitor Change Over Time?

With any condition issue, it is important to monitor the status of the object over time. The evaluation of change in the quantity of white deposits on a bead's surface is subjective in the case of glass disease due to environmental, viewer, and documentation factors.

The appearance of glass deterioration products depends on the relative humidity at the time of surveying. If the relative humidity fluctuates around the deliquescence point of the salts, then the salts can appear as crystals one day and droplets the next. As part of our research project described above, we assessed change by comparing an image or description of the beads' previous condition with a visual examination and pH measurement of their current condition. In most cases, the prior documentation images were not sufficiently detailed to determine whether more beads had white salts on them or whether the deteriorating beads had more salts present.

Our experience surveying previously treated objects helped to identify some best practices to facilitate evaluation of change over time:

- A dated detail photo with the location marked on an overall image.
- A record of pH measurements that includes the color of the bead tested, date of test, and testing locations marked on a photo.
- The development and use of a visual glossary for glass deterioration products as they appear on objects in the collection. This will help any written documentation to remain consistent across viewers (for an example, see O'Hern and McHugh 2014).

- When taking photos or recording pH, include the relative humidity in the documentation. This is especially true if the relative humidity fluctuates in the collection area.

### What Are the Best Storage Practices for Unstable Glass?

Maintaining specific stable environmental parameters is the best method for the long-term preservation of unstable glass. The recommended parameters vary slightly amongst the scholars who have published recommendations but in general range from 35 – 40% relative humidity (Oakley 1999; Oakley 2001, Koob 2006, Sirois 1999, Loughheed 1988). However these relative humidity parameters may be too dry for the safe storage of adjacent leather or threading materials. Encouraging air circulation around an object may also help to thwart the redevelopment of deterioration products by preventing the formation of microclimates.

### Conclusions

Glass beads are integral components of Native American objects and have a cultural importance larger than their role as decoration. Preserving glass beads from glass deterioration is significant for the long-term maintenance of cultural knowledge communicated by the beaded design.

The wide range of factors that can influence the development of glass deterioration can make the preservation of beaded objects difficult. However, the general trends highlighted by this article may help to guide future preservation efforts and museums with Native American collections. It is the hope of these authors that the development of standardized protocols for assessing the presence of glass deterioration and monitoring condition change over time will substantially improve the preservation of beaded objects.



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## A Guide for Native American Objects with Glass Deterioration, continued

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### REFERENCES

- Carroll, Scott, and Kelly McHugh. 2001. Material Characterization of Glass Disease on Beaded Ethnographic Artefacts from the Collection of the National Museum of the American Indian. In *Ethnographic Beadwork: Aspects of Manufacture, Use, and Conservation*, edited by Margot M. Wright, 27–38. London: Archetype Publications, Ltd.
- Cobo del Arco, B. 1999. Survey of the National Museums of Scotland Glass Collection. In *The Conservation of Glass and Ceramics*, edited by Norman H. Tennant, 229–38. London: James & James Ltd.
- Doyal, Sherry. 2001. Cleaning Historic Beadwork. In *Ethnographic Beadwork: Aspects of Manufacture, Use, and Conservation*, edited by Margot M. Wright, 117–22. London: Archetype Publications, Ltd.
- Dubin, Lois Sherr. 2009. *The History of Beads: From 100,000 B.C. to the Present*. New York: Abrams.
- Fenn, Julia. 1987. Deterioration of Glass Trade Beads in Contact with Skin and Leather or Glass Beads in Soapy Bubble. In *ICOM Committee for Conservation: 8th Triennial Meeting, Sydney, Australia: Preprints*, 1:195–97. Los Angeles: GCI
- Frisina, Ann. 2004. Glass Beads. In *Caring for American Indian Objects: A Practical and Cultural Guide*, edited by Sheryllyn Ogden, 135 – 142. St. Paul, MN: Minnesota Historical Soc. Press.
- Fusco, Maria, and Robert J. Speakman. 2010. The Application of X-Ray Fluorescence (XRF) Spectrometry in the Characterization of Glass Degradation in Beaded African Art. *The Bead Forum: Newsletter of the Society of Bead Researchers* 56: 1–12.
- Grabow, Nicole. 2011. ‘Sick’ Glass. *Objects Specialty Group List*. <http://cool.conservation-us.org/mailman/private/osg-l/2011-November/007656.html>.
- Hancock, R. G. V., A. Chafe, and I. Kenyon. 1994. Neutron Activation Analysis of Sixteenth and Seventeenth Century European Blue Glass Trade Beads from the Eastern Great Lakes Region of North America. *Archaeometry* 36 (2): 253–66.
- Karklins, K., R. G. V. Hancock, J. Baart, M. L. Sempowski, J.-F. Moreau, D. Barham, S. Aufreiter, and I. Kenyon. 2002. Analysis of Glass Beads and Glass Recovered from an Early 17th-Century Glassmaking House in Amsterdam. In *ACS Symposium #831: Archaeological Chemistry: Materials, Methods, and Meaning*, edited by Kathryn A. Jakes. Washington, D.C.: American Chemical Society.
- Karklins, Karlis. 2012. Guide to the Description and Classification of Glass Beads Found in the Americas. *Beads: Journal of the Society of Bead Researchers* 24: 62–90.
- Koob, Stephen P. 2006. *Conservation and Care of Glass Objects*. London: Archetype Publications.
- Kunicki-Goldfinger, Jerzy. 2008. Unstable Historic Glass: Symptoms, Causes, Mechanisms and Conservation. *Reviews in Conservation* 9: 47–60.
- Lord, Annie. 2001. Deterioration of Glass Beads on an Edwardian Evening Bodice. In *Ethnographic Beadwork: Aspects of Manufacture, Use, and Conservation*, edited by Margot M. Wright, 127–32. London: Archetype Publications, Ltd.
- Lougheed, Sandra. 1988. Deteriorating Glass Beads on Ethnographic Objects: Symptoms and Conservation. In *Symposium 86: The Care and Preservation of Ethnological Materials*, edited by R Barclay, M Gilberg, J.C. McCawley, and T. Stone, 109–13. Ottawa, Canada: Canadian Conservation Institute.
- Lovell, Adam. 2006. Glass Bead Deterioration of Ethnographic Objects: Identification, Prevention, and Treatment. Master’s Thesis, John F. Kennedy University. [http://library2.jfku.edu/Museum\\_Studies/Glass\\_Bead\\_Deterioration.pdf](http://library2.jfku.edu/Museum_Studies/Glass_Bead_Deterioration.pdf).
- Newton, R. G, and Sandra Davison. 1989. *Conservation of Glass*. London; Boston: Butterworths.
- Oakley, Victoria. 1990. Vessel Glass Deterioration at the Victoria and Albert Museum: Surveying the Collection. *The Conservator* 14 (1): 30–36.
- — —. 1999. Five Years on: A Reassessment of Aspects Involved in the Conservation of Glass Objects for a New Gallery at the Victoria and Albert Museum. In *The Conservation of Glass and Ceramics: Research, Practice and Training*, edited by Norman H. Tennant, 217–28. London: James & James Ltd.
- — —. 2001. Fighting the Inevitable: The Continuing Search for a Solution to Glass Decay at the V&A. *Glass Technology* 42 (3): 65–69.
- O’Hern, Robin and Kelly McHugh. 2014. Red, Blue, and Wound All Over: Evaluating Condition Change and Cleaning of Glass Disease on Beads. AIC Object Specialty Group Postprints. American Institute for Conservation 42nd Annual Meeting, San Francisco, California. Washington D.C.: AIC.
- Ryan, Jason L., David S. Mcphail, Philip S. Rogers, and Victoria L. Oakley. 1996. Glass Deterioration in the Museum Environment: A Study of the Mechanisms of Decay Using Secondary Ion Mass Spectrometry. In *ICOM Committee for Conservation Triennial Meeting (11th), Edinburgh, 1-6 September 1996: Preprints*, 839–44.
- Sirois, P. Jane. 1999. The Deterioration of Glass Trade Beads from Canadian Ethnographic and Textile Collections. In *The Conservation of Glass and Ceramics*, edited by Norman H. Tennant, 84–95. London: James & James Ltd.
- Smith, Corey. 2006. *Glass Bead Disease on Blue Glass Trade Beads from a Side-Fold Dress in the Collection of The National Museum of the American Indian*. Unpublished MCI #6015. Washington DC: Smithsonian Museum Conservation Institute and the National Museum of the American Indian.
- Sprague, Roderick. 1985. Glass Trade Beads: A Progress Report. *Historical Archaeology* 19 (2): 87–105.
- Stone, Tom. 2010. Care of Objects Decorated with Glass Beads. *CCI Notes* 6 (4).
- Weyl, Woldemar Anatol. 1959. *Coloured Glasses*. London: Dawson.

# Hidden Under the Skin: Examination of an Ecuadorian Polychrome Madonna of the Immaculate Conception

by Bianca M. García

## Introduction

This research was born out of the examination and search for understanding of the material and cultural context of ACP 1556, a possibly 19<sup>th</sup>-century polychrome sculpture of the Immaculate Conception brought from Quito, Ecuador to the United States in the mid-1940s and to the WUDPAC clinic in 2013. Through the study of cross-sections and other types of samples obtained from the sculpture, the pigments, binders, and surface coatings were identified. The findings helped date the underlayers to earlier centuries and determine the conservation treatment. This study will contribute to the limited but growing literature on analytical examination of Spanish Colonial Art.

## The Sculpture

### Description

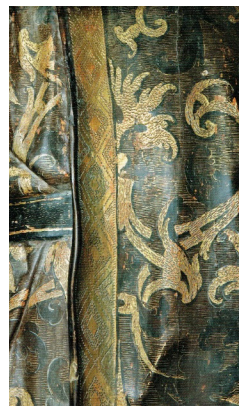
The polychrome wooden sculpture of the Virgin Mary measures 37.125" x 17.5" x 3.25". The sculpture was part of the interior ornamentation in a church in Quito, Ecuador. The crescent moon and praying gesture with the face tilted downwards identify the sculpture as an Immaculate Conception. The sculpture may have been part of a *retablo* (altarpiece) or a wall decoration within another portion of the church.



## Art Historical Context

Spanish Colonial Art in Quito can be traced to the Franciscan Orders establishment of the Colegio de San Andrés in 1555. This school produced the first native artists of Quito. They learned iconography by copying European models. Sculptors from Quito were influenced by the schools of Castille, Seville, and Granada. Quito is located near a wealth of natural resources providing easy access to wood, stone, and precious metals.

Spanish polychrome sculptures of the 16<sup>th</sup> century were usually dressed in robes actually made of linen or sackcloth. Seventeenth-century fashion featured brocades and velvets embellished with gold. To recreate this, artists used a technique called *estofado* which involved gilding, overpainting, and then



Detail of *estofado* on 17<sup>th</sup>-century Spanish polychrome sculpture. Image by: National Gallery of Art

scribing decorations to reveal the gold underneath (*sgraffito*). Tastes and materials changed in the 18<sup>th</sup> century; sculptures then began to feature fabric covered with plaster for the drapery, lead mask faces, glass eyes, and real hair. Artists began incorporating wings, halos, and chains made of silver or copper alloys into their sculptures. The use of *sgraffito* became old fashioned by the 18<sup>th</sup> century and was set aside for the *estofado a la chinesca* for which silver leaf was used. Overall transparent glazes were sometimes combined with gilded designs in relief.

## Analysis

### X-radiography

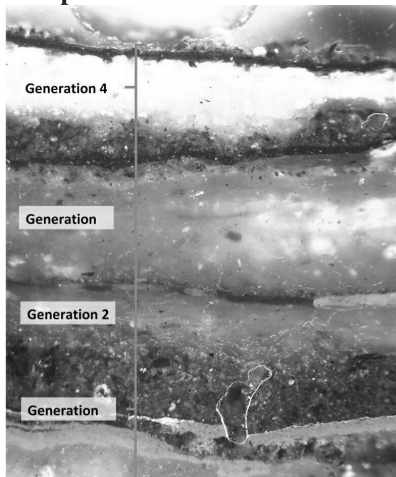
X-radiography provided information on the construction of the sculpture which was made from three vertical planks of wood adhered together. No metallic joinery was revealed; planks are likely held together with an adhesive and/or wooden dowels (not yet detected). X-radiography also revealed the extent of the degradation of the wooden support from past insect infestations, losses in the ground and paint layers, and the possible use of a radio opaque filler (such as lead white) from past restorations.



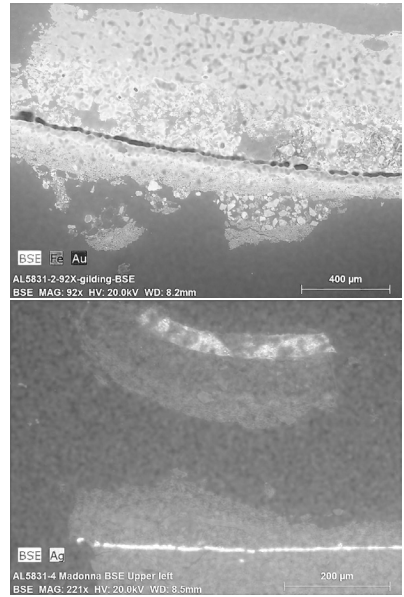


# Hidden Under the Skin: Examination of an Ecuadorian Polychrome Madonna, continued

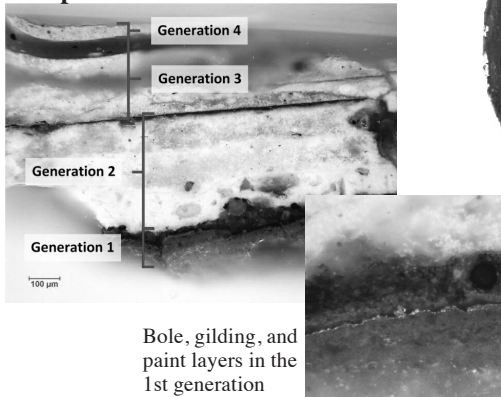
## Sample 1



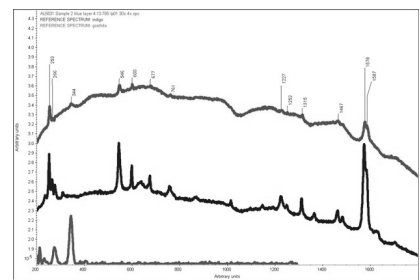
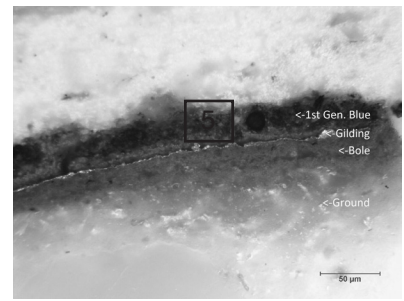
## SEM-EDS



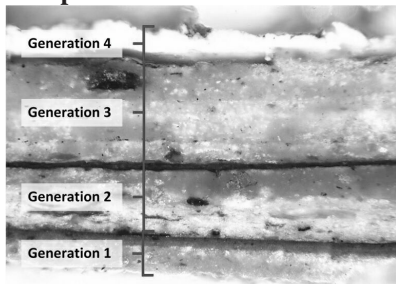
## Sample 2



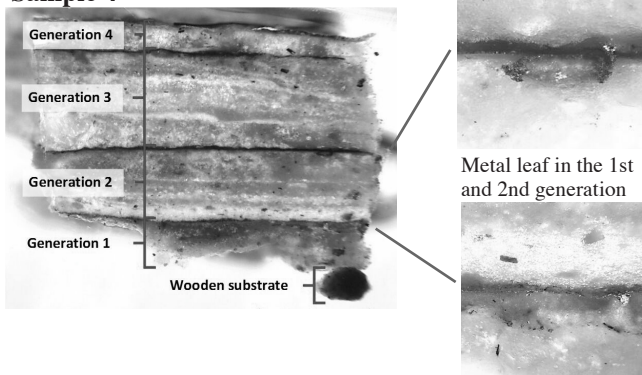
## Raman



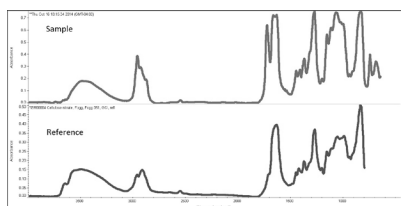
## Sample 3



## Sample 4



## FTIR





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## Hidden Under the Skin: Examination of an Ecuadorian Polychrome Madonna, continued

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### XRF

XRF analysis in an area of loss suggests the ground layer is composed of gypsum ( $\text{CaSO}_4$ ). Analysis of the presentation surface revealed mercury and lead in the flesh tones as well as in the lips and red underside of the blue mantle, indicative of vermilion, red lead, and lead white. The presence of Ba in the darker red layer on the underside of the blue mantle suggests the use of a red lake. The whites appear to be lead white and zinc white.

### Cross-section Microscopy

Cross-section microscopy performed on the sites identified in red revealed the presence of four generations of paint. A layer of gilding with paint applied over it in the first generation implies the use of the *estofado* technique. A layer of metal leaf was identified in the second generation. UV fluorescence and fluorochrome staining indicate the use of a carbohydrate and protein binder in the first three generations of paint and an oil binder for the fourth generation.

### SEM-EDS

SEM-EDS analysis of sample 1 (CS1) revealed a layer of gilding in the first generation. The metal was identified as gold, with an iron-rich layer underneath the gilding, most likely a bole. A layer of metal leaf was detected in the second generation of sample 2 (CS2). EDS results identified the metal as silver.

### Raman

Raman spectroscopy was performed on CS2. Sample location 5. The layer of blue over the gilding in CS2 was a match for an indigo reference spectrum.

### FTIR

FTIR analysis of the adhesive used in a previous restoration showed characteristic absorbance peaks for cellulose nitrate. (Cellulose nitrate was used in the early 20<sup>th</sup> century as an adhesive –Duco Cement.) Sample location 6.

### Interpreting the Results

The visual and technical analysis of this sculpture places it in close relationship with the Sevillian style and with what was being produced in Quito in the 17<sup>th</sup> and early 18<sup>th</sup> centuries.

Examples of 17<sup>th</sup>-century polychrome sculptures from Quito employed azurite and indigo for the blue. The color palette was extended in the 18<sup>th</sup> century to include the use of Prussian blue.

The materials identified in the first generation on ACP 1556 seem to fit better with the 17<sup>th</sup> century. However, the materials found in the second generation of paint do correlate to 18<sup>th</sup>-century materials, specifically the silver leaf.

The presence of gold and indigo in the lowest paint layer supports the case for an earlier date of the original creation, placing the first presentation surface of the sculpture closer to the 17<sup>th</sup> century.

The image on the right is a digital reconstruction of what the sculpture may have originally looked like in the 17<sup>th</sup> century. The pink and white areas of the drapery and the moon would have also been gilded.

### Treatment to Date Condition

The sculpture had an overall layer of grime. There were remnants of a partially removed, discolored varnish and areas of uneven overpaint. The paint and ground layers were actively flaking, and the insect damage had created weak spots in the wooden support.



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## Hidden Under the Skin: Examination of an Ecuadorian Polychrome Madonna, continued

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### Treatment

1. Application of 10% Aquazol 200 in 1:1 isopropanol and water was followed by heating with a tacking iron.
2. The surface was cleaned using PVOH sponges and D4 (cyclomethicone, to prevent penetration of aqueous solutions which could impact on water-soluble underlayers) followed by a 2% citrate solution buffered to a pH of 8.5 with TEA.
3. The paint layers on the face and hands were humidified with the use of Gore-Tex. Consolidation and flattening with 10% Aquazol 200 in 1:1 isopropanol and water was followed by heating with a tacking iron.



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## Articles You May Have Missed

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**“The Art of Chocolate (and Soap),”** *Smithsonian.com*, 02/10/2015

Two portrait busts standing next to each other on the third floor of the Hirshhorn gallery are sculpted from two of the more uncommon materials in the Hirshhorn collection: chocolate and soap.

Contemporary artist Janine Antoni created the original sculptures in 1993 from molds of her own head. Then she licked the chocolate bust down until its features became indistinct, and took the soap bust into the shower with her, letting water slowly erode its features. Hence the artwork’s name: *Lick and Lather*.

*Lick and Lather* also represents the success of a long and scientific partnership between Antoni and the Hirshhorn’s conservators. The Hirshhorn acquired its version of the work in 2001. But sometime between 2004 and 2008, the Hirshhorn’s soap bust began to decay.

Both the busts had aged, with the chocolate bust taking on the whitish tinge that a chocolate bar does when it’s been around for a while. To an extent, this normal aging is part of the artwork’s intention, says Antoni. But the soap bust had developed problematic-looking white crystals on its surface.

Hirshhorn conservator Gwynne Ryan suggested calling Antoni to get her input on the process. Although partnerships between artists and conservators are becoming more common in the contemporary art world, they still aren’t the norm, she says.

Over the next two years, starting in early 2011, Ryan says, Antoni opened her studio to the conservators. They read Antoni’s notes, tested other *Lick and Lather* soap busts, and interviewed her soapmaker. They discovered that Antoni’s soapmaker had used different soap formulations for different busts. The Hirshhorn’s bust had become unstable because there was excess lye in it.

So the team decided to formulate 16 different varieties of soap in the conservation lab, which they then cut into samples that they tested in different environmental conditions. Eventually, the team discovered which formulation would be the most stable. Antoni gave them a different soap bust to replace the older one.

Ryan says further experiments may focus on how heat and mold thickness affect the soap’s durability. This information, says Ryan, could be beneficial not just to Antoni and the Hirshhorn, but to the museum conservation community as a whole.

**“Hidden Art: Depression-Era Mural to Return to Life in Cedar Rapids City Hall; Part of the Mural has been Hidden from View for 50 Years, Including Controversial Sections,”** *The Gazette*, 02/27/2015

Come the end of April, residents will see the main reason workers on two occasions — the last time some 50 years ago — painted over a Great Depression-era mural that adorned the large courtroom in the former federal courthouse.

In 2011, the courthouse at 101 First St. SE became City Hall, and its large courtroom became the City Council chambers. On April 13, a city-hired restoration firm will begin work to unveil the third wall of the four-wall mural for all to see. This part of the public art project will restore the “most controversial” piece of the overall mural, which wraps around the top of the room.

It is controversial because the restoration will reveal an image of a vigilante hanging, which at the time was positioned on the east wall directly across from the jury box. Judges in 1954 painted over the mural, in part, because defense lawyers objected to the image of the hanging even though it was paired with a show of progress — an image of modern-day law and order.

Restored in 1961, it was covered over again a few years later after art experts said it had neither artistic nor much historic value. The third restoration project was given the go-ahead this week

by the City Council.

Also to be revealed in the latest restoration are images that depict the replacement of superstition and witchcraft by hospital medicine, and an image that shows a doctor talking to a naked patient next to newspaper headline, "Sweden Defeats Syphilis" and a sports headline, "Play Ball."

**"Undoing the Ruins Once Wrought by Vesuvius,"** *The New York Times*, 03/20/2015

Restorations completed earlier this year on the Villa of the Mysteries in Pompeii have disclosed the brilliant colors as they existed at the time of the eruption, as well as repair work that was done on some figures in ancient times, preservation officials said.

An international team of experts used both traditional and high-tech methods to restore the mosaics and frescos and supporting structures in the villa during the two-year project. "This is the most ambitious restoration ever because it involved all the rooms," said Massimo Osanna, the culture ministry official in charge of the site.

Mosaics were restored one piece at a time, while frescoes were cleaned. Lasers were also used on the frescoes, in particular to remove layers of wax applied since the 1930s, oxidizing over time to darken the colors. The restored palette is what Pompeiians saw when Vesuvius erupted, Mr. Osanna said, adding that the lasers also allowed restorers to determine that some figures had already been repaired in ancient times.

"Problems of deterioration had begun before the eruption," he said. Experts also used ultrasound, thermal imaging and radar to study the walls of the villa and gauge their level of deterioration. The results will be published in the coming months so that they can be consulted for future restorations.

**"Living Artists Should Approve Restoration Plans, Chubb Advises,"** *PRNewswire.com*, 03/23/2015

Recognizing a major generational shift in art collecting from Impressionist and Modern to Post-War and Contemporary works, the Chubb Group of Insurance Companies has published a white paper on "Conservation of the Works of Living Artists."

Released at the annual conference of the International Society of Appraisers, Chubb's white paper advises collectors to involve living artists in restoration decisions. "Based on the Visual Artists Rights Act (VARA) of 1990, living artists should be consulted before any restoration begins on their works," said Laura Murphy Doyle, a fine art specialist at Chubb Personal Insurance who

authored the paper. "Failing to do so could prompt an artist to unnecessarily denounce a work, essentially rendering it worthless."

In such a case, an insured work would be considered a total loss, and an insurer would require that it be destroyed or donated to an organization for conservation research, so that it doesn't resurface on the art market.

Unless artists waived their VARA rights prior to damage, they can elect to perform a restoration themselves or in collaboration with a conservator; approve the treatment plan and allow conservators to perform the restoration; or denounce the work if it has been modified to the extent that they no longer view it as their original piece.

"In the vast majority of cases where an artwork is damaged, the artist is willing to be involved—actively or as consultant—in the conservation," the paper concludes. But in some cases, artists "have disclaimed authorship of a piece due to relatively minor damage."

The paper also notes that since VARA only covers works of visual art, including paintings, sculpture, drawings, prints, and certain still photographs, its application to new media is unclear. VARA, as is the case with most insurance, also does not apply to artwork incorporating ephemeral materials.

**"LACMA Purchases Long-lost Masterpiece, once Kept under a Couch,"** *Los Angeles Times*, 04/01/2015

Christina Jones Janssen had something more valuable under the couch in her Bay Area home — a lost and extremely rare masterpiece of 18th century painting, neatly rolled up and remarkably well-preserved.

She suspected it might be important, and her sleuthing led to what art experts are calling one of the most important discoveries of Mexican Colonial art in recent memory. The picture is a long-lost work by Miguel Cabrera (circa 1715-1768), the greatest painter of his era in Mexico City, capital of the Viceroyalty of New Spain. His prolific workshop produced religious and secular art for the Catholic Church and the social elite.

The painting's rediscovery is a major art historical event. The painting is the sixth in a distinctive set of 16 casta paintings, a controversial but fascinating genre invented in Mexico. In a system devised by white elites, castas explore the Enlightenment Age theme of miscegenation, or interracial marriage, among Indians, Spaniards, and Africans.

Cabrera painted only one set, widely considered the genre's finest. The painting shows a prosperous Spanish father and doting

Moorish North African (or Morisca) mother dandling their cheerful albino baby.

Cabrera's inventive castas are hanging scrolls, a format common to Asian art but virtually unknown in Europe and the Americas until the Manila Galleon trade, an annual shipment to Acapulco from the Spanish colony in the Philippines. Goods came from Japan, India and especially China.

LACMA's canvas is the set's only one to retain its original painted wooden molding across the top and scroll bar at the bottom. The surviving equipment made the painting easy to roll, facilitating travel and safe storage.

Museum conservator Joseph Fronck said that storage probably helped preserve the chromatic brilliance of otherwise fugitive colors, such as the Spaniard's red velvet sleeve, painted in layered glazes. The overall condition is very good, with only minor paint losses in mostly secondary areas.

**"Watching Them Turn off the Rothkos,"** *The New Yorker*, 04/01/2015

Every afternoon at four o'clock, people gather on the third floor of the Harvard Art Museums to watch them turn off the Rothkos. The Rothkos are the series of murals that Mark Rothko painted, more than fifty years ago, on commission from Harvard, and the story of their demise and rebirth has been reported in several places.

The work consists of five separate canvases, which were installed, in 1964, in the penthouse of the newly constructed Holyoke Center, a ten-story Harvard office building on Massachusetts Avenue across from the Yard. The canvases are each eight and a half feet high, and they hung on the east and west walls of the penthouse. There were picture windows, with spectacular views, on the other walls.

Although Rothko set conditions on the installation, the murals quickly began to deteriorate. People liked the views, so the curtains were rarely closed, and there were no guards around.

Concerns about the condition of the murals started to be raised soon after Rothko's death, in 1970. It wasn't until 1979 that they were finally taken down and put into storage. They had lost most of their original color.

Because of the methods and materials Rothko used, it was impossible to restore them by conventional means. So a solution was borrowed from a technique known as "compensating illumination," which was pioneered by the art conservator Raymond Lafontaine. Five digital projectors have been programmed to light the canvases so that the original colors reappear.

At four o'clock every day, the



projectors are turned off one by one, and the colors revert to (mostly) muddy blacks and grays. No one seems to think that compensating illumination is evil. After all, the works are still Rothkos, and they're physically unaltered.

Some people have complained that light that's projected onto a canvas has a different effect from light that emanates from the canvas. But for most viewers, the difference is not pronounced.

**“Students Restore Photos of 3 Children, Grandmother Killed in House Fire,”** *AL.com*, 03/16/2015

Family members of three boys and their grandmother killed in a house fire the morning after Christmas now have hundreds of photos salvaged from the blaze to help preserve memories of their loved ones.

About 260 photos, which were about the only items rescued from the Dec. 26 fire in Washington Court House, were restored by art conservation graduate students at the University of Delaware. Many of the photos were charred, covered in soot and stained by the water used to fight the blaze that took the lives of 60-year-old Terry Harris and her grandsons: Kenyon, 14, Broderick, 11, and Braylon, 9. Police had said the boys wanted to spend Christmas night with their grandmother so she wouldn't be alone.

The restored photos were delivered to the family Friday in a tear-filled gathering in their hometown about 75 miles north of Cincinnati. Debra Hess Norris, chairwoman of the University of Delaware's art conservation department and a photograph conservation professor, delivered the photos to the family. Michael Emmons, a doctoral student in preservation studies at the University of Delaware and a Harris family friend, also helped deliver the photos.

Emmons, who found the photos at Ricky Harris' home where they had been taken after the fire, had sent the photos to Norris. “I wasn't even sure they could be restored,” he said by telephone afterward. An unexpected result from the restoration work was the development of some new techniques for the preservation of fire-damaged photographs, Norris said.

**“Michelangelo Work Damaged in Spain's Civil War Unveiled after Restoration,”** *The Guardian*, 04/02/2015

It has been bombed, burned and smashed into pieces. Now, after nearly two decades of restoration work, Spain's only sculpture by Michelangelo is triumphantly on display at the Prado museum, its turbulent

history merely hinted at by cracks and burn marks.

Young Saint John the Baptist, one of the few Michelangelo pieces outside of Italy, is thought to have been created around 1495. The sculpture, which is more than a metre tall, ended up in Spain in the 16<sup>th</sup> century, in a chapel in Úbeda, 90 miles east of Córdoba. In 1936, as Spain descended into civil war, the chapel came under attack. The sculpture was smashed and burned.

From fragments of a forearm to a handful of curls, just 14 pieces remained of the sculpture, amounting to around 40% of the original work. The fragments remained in Úbeda, preciously guarded in a museum.

In the early 1990s, buoyed by new developments in art restoration, its owners began talks with Italy's Opificio delle Pietre Dure, based in Florence. Rapidly advancing technology meant that a previously unimaginable reconstruction of the sculpture was now possible.

In 1994, the sculpture fragments were sent to the restoration group in Italy. The process lasted 19 years. Using various photographs and written accounts of the sculpture before it was destroyed, the team in Florence created a digital 3D image. This became their guide as they reassembled the piece using the original fragments of marble, and created missing pieces from fibreglass coated with stucco. A laser was used to clean off the original parts that had been blackened by fire.

**“The Camera that can See under the Surface of Old Masters: Scanning System Can Virtually Peel Back the Layers of a Painting,”** *Daily Mail*, 04/13/2015

Researchers from Nottingham Trent University's School of Science and Technology partnered with the National Gallery in London have found a way to 'peel back the layers' of old masters and discover exactly how they were painted.

A new scanning system can see under the surface of painting, revealing the layers many masters used to build up their work.

Optical Coherence Tomography (OCT) was originally developed for medical imaging but has also been applied to art conservation. Because it uses a beam of light to scan the intact painting without removing physical samples, OCT allows researchers to analyze the painting more extensively. However, the spatial resolution of commercially-available OCT setups is not high enough to fully map the fine layers of paint and varnish.

In OCT, a beam of light is split: half is directed towards the sample, and the other half is sent to a reference mirror.

The light scatters off both of these surfaces. By measuring the combined signal, which effectively compares the returned light from the sample versus the reference, the apparatus can determine how far into the sample the light penetrated. By repeating this procedure many times across an area, researchers can build up a cross-sectional map of the painting.

Using a broadband laser-like light source -- a concentrated beam of light containing a wide range of frequencies range -- allows for more precise data collection, but such light sources were not commercially available until recently. That's because OCT is particularly sensitive to changes in refractive index. It could also be useful for analyzing historical manuscripts, which cannot be physically sampled in the same way that paintings can.

**“Phase Two of Disney Cel Conservation Launched,”** *Animation Magazine*, 05/08/2015

The Walt Disney Animation Research Library (ARL) and the Getty Conservation Institute (GCI) announce that the second phase of their collaborative cel conservation research project has begun.

Over four years, scientists and conservators from the ARL and GCI will investigate optimal storage conditions for cels, as well as strategies for re-attaching flaked and delaminated paints to the plastic surface. The joint effort has been the keystone of GCI's Preservation of Plastics project, one of the key components of its long-term Modern and Contemporary Art Research Institute.

The collaboration has been led by Michael Schilling, senior scientist at the GCI, and Kristen McCormick, Art Collections and Exhibitions Manager at the ARL. Continued work will be performed not only by outside professionals, but several in-house GCI staff. The spirit of cooperation and lending of expertise can serve as models for future partnerships in plastics conservation.

**“The Restoration Game: Painting Revealed as Genuine Titian,”** *The Guardian*, 05/08/2015

It was a heart-stopping moment when the conservator Alice Tate-Harte gently cleaned off centuries of thick black paint and grime and uncovered square Roman letters spelling out the name TITIANUS.

The reputation of the bare-breasted young woman in the painting was instantly transformed: she has turned out to be a genuine work by one of the most revered masters of European painting, not a much

later imitation of his style.

The painting of a woman half-wearing a sumptuous gold braid-trimmed silk and fur robe was known as Titian's Mistress but was believed to have been painted long after his death in 1576. It has been hiding in public view for centuries.

Now cleaned of layers of overpainting covering up historic damage, including the time when it was slung into a chest of booty looted from the Spanish royal collection, it will go on display this summer for the first time as a genuine Titian at Apsley House, the palatial London home of the Duke of Wellington, now in the care of English Heritage.

The original surface had been overpainted to cover up extensive damage, including in the 18th century when the rectangular canvas was folded and packed into an oval frame, made worse when it was later reversed. The young woman's eyes now sparkle and her pearls gleam.

However, much of the damage is irreversible: cleaned, she now appears to be wearing a very dirty smock, which is actually the grey underpainting showing through. "I've done as much for her as I can," Tate-Harte said. "Enough, I hope, so that people can now see her real quality."

#### **"Nepal: Restoring the Ancient Murals of Mustang,"** Baltic Review, 10/31/2014

Season by season, a team of carpenters and wall-painting conservators, led by Luigi Fieni, set to work bringing Mustang's treasures back to life.

Since 1997, the American Himalayan Foundation undertook the difficult task of restoring the masterpieces present in the Buddhist temples of Jampa and Thupchen, which used to be major centers of religious activities in the region. Fieni, an Italian citizen, has been working as a conservator of Tibetan art for the past sixteen years.

Fieni has trained – together with other Westerners – more than 30 local residents to work on the art. The American Himalayan Foundation, following the idea that conservation work should restore the original function of an artwork, especially if it holds a religious meaning, is not only restoring, but also completing all the missing parts of the wall paintings.

To a certain extent, this goes against the predominant western application of pictorial integration, which virtually forbids the reconstruction of missing parts, as it would interfere with the artist's original interpretation of the artwork.

"When we first started the pictorial integration of the murals, the whole

community was puzzled by the fact that we were not reconstructing the missing parts of a Buddha," Fieni explained. He emphasized the importance of tailoring conservation efforts according to the expectations of the locals. The restoration work has awakened the unique cultural heritage in remote Mustang, while simultaneously providing young people with job opportunities.

#### **"Harvard Art Museums put Pigments on Display,"** The Boston Globe, 11/01/2014

There are no galleries on the fourth floor of the new Harvard Art Museums complex, which reopens to the public Nov. 16 after a six-year renovation and expansion. Yet it boasts a sight whose beauty rivals that of the artwork displayed on the levels below.

Visible behind the glass doors of a set of simple dove-gray cabinets is the pigment collection of Harvard's Straus Center for Conservation and Technical Studies. On the shelves are bags, boxes, tubes, phials, bottles, bladders, cans, and jars containing the ultimate chromatic spice rack: seasonings meant for eye rather than tongue.

Harvard, which has been collecting historical pigments since 1910, uses them for restoring and authenticating paintings. The collection comprises nearly 2,000 pigments, along with more than 1,000 items of related materials, including brushes, palettes, waxes, gums, resins and varnishes.

Harvard's old Fogg Museum had a small selection of pigments on display. Showing the entire collection was the architects' idea, says senior conservation scientist Narayan Khandekar.

#### **"The Greatest Picture in the World': Italy Relies on Donor to Restore Piero Della Francesca's The Resurrection, The Masterpiece Saved in Wartime,"** The Independent, 11/16/2014

A street in a small town in Italy bears the name of a British officer who risked court martial to save a Renaissance masterpiece from shelling in the Second World War. Yet, Italian art experts have become so worried about the state of the 15th-century fresco dubbed "the greatest picture in the world", that they have embarked on a major restoration project.

The work was only made possible with a hefty donation from a private citizen. Piero della Francesca's *The Resurrection*, on display in Sansepolcro in north-east Tuscany, is widely hailed as one of the masterpieces of late 15th-century Italian art.

Concerns have been raised that the work is flaking and discoloured, while cracks are increasingly visible. Italian businessman

Aldo Osti, a former executive of Italian food company Buitoni near Sansepolcro, has stepped in with half of the €200,000 (£160,000) needed to save the painting but the work is being run by the state.

HV Morton revealed in *A Traveller* in Italy in 1964 that officer Tony Clarke had saved the painting. After orders to shell Sansepolcro, where the Germans were stationed, he remembered an essay by Aldous Huxley which described the painting as "the greatest picture in the world". Mr. Clarke refused to give the order to turn the artillery guns on the town, despite instructions from his commanding officer. Shortly afterwards, the Germans fled anyway. Sansepolcro still has a street bearing his name.

#### **"The Raphael Rooms, Final Restoration: 'The Colors of the Renaissance Return'"** La Repubblica, 12/05/2014

Antonio Paolucci, director of the Vatican Museums, will raise the curtain on the imminent intervention on the Hall of Constantine – the final element of a conservation project that has lasted for years.

The last of the four Raphael Rooms – finished in 1524 based on designs of the master who disappeared prematurely in 1520 – will close an extraordinary parabola demonstrated by the interventions of the previous years on the other three rooms. Conservation will begin in February of 2015 and is expected to take eight years.

The project will be directed by Paolucci and Arnold Nesselrath and will address all of the painted surfaces, starting with the east wall and the *Vision of the Cross*, with interventions on the vault and the central panels as well. A team of seven conservators from all over Italy led by Fabio Piacentini will consolidate the plaster, the paint layers and carry out laser cleaning.

#### **"A Restoration too Perfect. The Story of Raffaele Gargiulo at the Getty in Malibu,"** Artri, 12/20/2014

Dangerous Perfection. Funerary Vases from Southern Italy is the result of a long process of restoration that lasted six years and finally offers the public a wonderful group of funerary vases with red figures, from the collections of the Antikensammlung Berlin.

The adventures of thirteen vessels, dating from the fourth century BC, begin in Ceglie del Campo, Apulia, where hundreds of fragments were found in the early nineteenth century. They ended up in the workshop of one of the most famous restorers of the time, Raffaele Gargiulo, employee of the Royal Bourbon Museum

of Naples, collector and forger.

"The vessels arrived here in November 2008," said the restorer Marie Svoboda, who has followed all the steps in the process. "More than a restorer, Gargiulo was an art dealer well known in the market for antiquities, had an international clientele. But for this he was more interested in aesthetics than to follow a careful and respectful restoration methodology. "For example, he used to complete the gaps in style painted decorations, to the point that it is difficult to distinguish the modern intervention from the original.

Quite a challenge for the restorers, who have had to separate all the pieces, clean them and then recompose the vessels. "In this way we were able to gather new information on restoration techniques of early nineteenth century, adding an important element to the historical studies on archaeological restoration."

**"The Twilight World of 'Zombie Art',"** The Financial Times, 02/06/2015

Salvage Art Institute (SAI) was founded five years ago by Elka Krajewska. A Polish-born New York-based artist, Krajewska discovered that many damaged artworks, deemed beyond repair and legally declared worthless, were not destroyed but, instead, lived on in warehouses, forgotten by anyone other than the insurance companies that had become the works' owners.

Krajewska then persuaded AXA Art, one of the world's largest contemporary art insurers, to donate her a sampling of its inventory. The SAI went on to stage an exhibition, No Longer Art, at Columbia University, New York City.

Krajewska believes pieces salvaged in this way (sometimes referred to as "dead" or "zombie" art) can provide a new way of looking at contemporary art. "The idea that an artwork's status can be radically reassigned is what I find most interesting; how, even when damage is minor and easily restorable, something can be deemed to be art one moment but not the next."

Declaring an artwork a total loss demands the agreement and involvement of multiple experts. Insurance companies such as AXA mediate between art owners, appraisers and conservators before passing a final judgment on whether an artwork should be restored.

Sometimes there may be no other option but to declare it a total loss. On the other hand, sometimes the damage to a work might not necessarily be irreparable but the cost of conservation and the subsequent loss in market value are thought to be greater than the amount for which it is insured.

**"Jackson Pollock Painting Returns To The Peggy Guggenheim Collection After Major Conservation,"** In Collect, 02/17/2015

Alchemy, a large-scale, sumptuously-textured painting by the Abstract Expressionist Jackson Pollock has returned to the Peggy Guggenheim Collection in Venice after undergoing extensive conservation.

The work, one of Pollock's earliest poured paintings, traveled to Florence's Opificio delle Pietre Dure, where it underwent an analytical study, cleaning, and conservation. The painting's surface, which features dense layers of enamel, alkyd, oil paint, twine, sand, and pebbles, had been dulled by dirt and grime.

For the duration of the exhibition, *Alchemy by Jackson Pollock: Discovering the Artist at Work*, the painting is being presented without glass or Plexiglas, providing an unprecedented look at the restored work's astonishingly vivid colors and sculptural surface.

Visitors are guided through every technical aspect of the conservation process thanks to a multimedia installation that features video, 3D reproductions, touch-screens, interactive devices, and documentation and original items loaned from Pollock's studio at the Pollock-Krasner House and Study Center in Long Island.

One discovery was that Pollock relied on a rational plan for laying on Alchemy's nineteen pigments. Previously, it was believed that the composition was made up of random spatters and drops. The long process of study and conservation revealed delicate traces of white paint, creating the semblance of a grid, which allowed for a precise compositional order.

**"The Chemistry of Why van Gogh Reds Are Going White,"** Hyperallergic, 03/04/2015

As reported this week by Matthew Gunther at the Royal Society of Chemistry's Chemistry World, a team at the University of Antwerp examined a microscopic sample of van Gogh's "Wheat Stack Under a Cloudy Sky" from 1889 at the Kröller-Müller Museum using X-ray powder diffraction tomography, basically focusing beams to reveal crystalline compounds.

Van Gogh loved the vibrant lead pigment colors, and the red in "Wheat Stack" turned out to contain a rare mineral lead called plumbonacrite that through light exposure was gradually coated in carbonates that were causing the discoloration.

The results were described last month in "Plumbonacrite Identified by X-ray Powder Diffraction Tomography as a Missing Link during Degradation of Red Lead in a Van Gogh Painting" in *Angewandte Chemie*,

published by the German Chemical Society.

As they note in their abstract: "This is the first reported occurrence of this compound in a painting dating from before the mid-20th century." Interestingly, it's a different issue than the recent analysis of the fading of red in Renoir's "Madame Léon Clapisson", where the red lake pigment made of cochineal insects was separating.

With van Gogh's "Roses" (1890) in the National Gallery of Art now flowering in ivory blooms, and those "Wheat Stacks" once surrounded by flourishes of red now muted, the continued research on the chemistry of van Gogh's pigments could have a wider influence on art conservation. And importantly, it could influence the way his paintings are displayed in light, knowing that the rare mineral in the red may fade from the colors the artist originally envisioned.

**"Robust Self-Cleaning Surfaces that Function When Exposed to either Air or Oil,"** Science, 03/06/2015

A new paint developed by researchers overseas can be applied to clothes, paper, glass, and steel and--when combined with adhesives--retains its remarkable self-cleaning properties even after it's been scuffed and scratched.

Superhydrophobic self-cleaning surfaces are based on the surface micro/nanomorphologies; however, such surfaces are mechanically weak and stop functioning when exposed to oil.

The new formulation is an ethanolic suspension of perfluorosilane-coated titanium dioxide nanoparticles that forms a paint that can be sprayed, dipped, or extruded onto both hard and soft materials to create a self-cleaning surface that functions even upon emersion in oil.

Commercial adhesives were used to bond the paint to various substrates and promote robustness. These surfaces maintained their water repellency after finger-wipe, knife-scratch, and even 40 abrasion cycles with sandpaper. Droplets that fall onto a treated surface coalesce into bigger drops that soak up dirt as they roll across the surface.

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A entire psychology had been devised involving the *only child*, a variant of the *first-born*.

The *only child* is not inevitably the *first-born*, however. The *only child* may be the survivor.

from *Mudwoman*  
by Joyce Carol Oates