

President's Letter

Teresa Moreno

Dear WAAC,

As this is my last letter to you as WAAC president, I want to take this moment to offer my sincerest thanks to all the members who helped to make this year's WAAC meeting in Tucson a happy success! Each of you who attended, through your mere presence and participation, played an integral part in this success. Without you, the annual meeting is nothing. Without you, WAAC would be nothing. Your on-going commitment and eagerness to come together to engage with your colleagues and to share your ideas and scholarship is what makes WAAC thrive.

This year's WAAC meeting was held in the iconic Old Main building in the heart of the University of Arizona campus in Tucson. It was a real pleasure for me especially to host you all here in my home town and at my alma mater. It was a fitting place for such a scholarly exchange. Thank you all for your dedication to this truly wonderful and spirited organization!

I owe many thanks to Jae Gutierrez, the Arthur J. Bell Senior Photograph Conservator at the Center for Creative Photography, and to Dana Senge, Objects Conservator, and her awesome staff at the Western Archaeological and Conservation Center, for opening up their labs for pre-conference tours. Thanks also are due to all my colleagues at the Arizona State Museum who helped with many details for the opening reception, especially Nancy Odegaard, Gina Watkinson, Skylar Jenkins, Betsy Burr, and Leah Bright who facilitated the tours of the ASM conservation lab as part of the reception. Visitors to these three labs were able to get a glimpse at the wide range of conservation activities and expertise that we have here in the Old Pueblo.

All in all, the opening reception was a fun and casual evening spent catching up with old friends and making new ones! In addition to fun finger foods and flowing libations, and the behind-the-scenes peek at the ASM conservation lab, a highlight of the opening reception was that WAAC members were welcomed to ASM and to the U of A by R. Brooks Jeffery, Associate Vice President for Research and Professor of Architecture, Planning, and Landscape Architecture. As an architect whose work has focused significantly on historic preservation, Brooks has been a long-time ally to ASM conservators. With his recent appointment to the U of A administration, with oversight of the university's three largest museums, Brooks is a stalwart and steadfast advocate for conservation and preservation initiatives within the University of Arizona community and the region. He was thrilled by the fact that the U of A was the host for this year's annual WAAC meeting, and jumped at the opportunity to welcome the members as he, in particular, recognizes the importance of promoting the valuable work and research that conservators do. While his greeting to the membership was brief, it carried a great deal of significance.

The meeting presentations kicked off with a fabulous keynote by notable local architect, Corky Poster, Principal at Poster Frost Mirto, on some of the challenges faced in the preservation of a number of historic properties in the southern Arizona region, including the conference venue itself, the original 1891 University of Arizona building, lovingly referred to as Old Main. Corky's talk served as a nice welcome and introduction to some of the larger scale preservation projects in the area.

The talks that followed over the course of the next few days were really fantastic! We had contributions on a range of topics by many of our local conservators and museum professionals as well as by conservators from the greater western region and even beyond! Several talks focused on successful collaborative projects with American Indian communities, and other talks highlighted innovative treatments and methods of analyzing significant American Indian objects. In addition to talks focused on object conservation, we also had a wonderful selection of talks

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President's letter, continued

related to the conservation of paper documents and photographic materials, some challenges of emergency preparedness and response, and various materials used for treatments. There was a little something for everyone's interest!

The final day of the conference was a real treat, even for us locals. A panel made up of local professionals from a range of fields including architecture, historic preservation and art conservation came together to offer WAAC members a unique view into the overarching effort to preserve one of Arizona's most notable historic landmarks, the Mission San Xavier del Bac!

Bob Vint, historic preservation architect, provided a brief history of the Mission and its preservation. Daniel Morales, Sr. and his son Vincent Morales, Morales Restoration & Builders, Inc., told their story of their family's involvement in the restoration of the Mission's exterior masonry over the course of five generations. Conservators, Suzanne Morris and Aneta Zebala, presented a summary of the assessment and maintenance plan that they developed for the Mission, which has served as a guide for work currently ducted by Mathilde Rubio and Tim Lewis, Tohono Restoration.

Miles Green, Executive Director of Patronato San Xavier, followed by giving an enlightening talk about the challenges of managing a restoration project that is both an historic landmark and a working church within a tribal community. He also presented the history of the establishment of the Patronato and its continuous efforts to fund the on-going preservation of the Mission.

These talks were followed by a field trip out to the Mission where the morning's speakers lead WAAC members on intimate tours of the Mission's interior and exterior. This special panel and the tours of the Mission San Xavier del Bac were coordinated to provide WAAC members with a special look at one of the largest continuous preservation projects in the Southwest. Likewise, the WAAC meeting provided the perfect venue to bring all of these contributors together in a professional forum.

While the meeting proper ended with the tours at San Xavier Mission, the WAAC Angels Project, which took place the following day, was a real demonstration of the spirit and passion of WAAC conservators! In short it was a huge success! The beneficiary of this year's project was the Old Pascua Museum & Yaqui Culture Center, a small tribal museum led by a one-man staff and volunteer director, Guillermo Quiroga.

WAAC participants gathered at the Old Pascua Museum at 9:00 a.m, and Mr. Quiroga gave a brief history and tour of the museum and the Yaqui church and ceremony grounds before the group headed to the Yaqui Resource Center. A team of made up of seventeen conservators, conservation graduate students and conservation intern was joined by at least sixteen members of the Yaqui community and other community volunteers, and together we accomplished most of what we had hoped for the project.

Angels formed teams to work on various projects. Paintings conservators tackled the onerous task of documenting the condition of three large murals (two murals and one nativity scene; each composed of three sheets of plywood.) Objects and textile conservators worked on the condition assessment of various items from the museum collection. Jae Gutierrez from CCP set up a station to teach the Knowledge River students and community members how to carefully remove community photos from old magnetic photo albums. This was a huge help in facilitating the on-going photo archiving project at the museum.

Last but not least, a group of Angels worked tirelessly to design and fabricate an upright storage support for the 9 mural panels. This required serious strategizing with limited time for error, not to mention hours of cutting and hot gluing foam

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Internet

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

Deadline

Contributions for the January *Newsletter* should be received by the Editor before **January 30, 2017**.

Western Association for Art Conservation

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

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and blue-board. This team worked to the bitter end, helping to transport the finished storage racks back to the storage unit at the Yaqui Senior Center and then carefully loaded the mural panels onto the racks. We finally wrapped things up around 6:30 pm after the sun had gone down. There was a social event being held in the Senior Center and the music from the party was loud and festive! It was a great end to the day and everyone was able to walk away with a great feeling of accomplishment!

A million thanks to the WAAC Angels (Jae Gutierrez, Susanne Friend, Anetta Zebala, Morgan Hayes, Yadin Larochette, Gina Watkinson, Betsy Burr, Skyler Jenkins, Leah Bright, Megan Salas, Madeline Corona, Christiana Ginatta, Mathilde Rubio, Tim Lewis, Terrence Encinas, Jennifer Rainey) and to members of the Yaqui community and other volunteers (Guillermo Quiroga, Kari Quiballo, Ofelia Zepeda, Maria Cuello, Ernesto Quiroga, Ricardo Escalante, Roman Perez, Augustin Molina, Jennifer Flores, Mario Humo, Eddie Frias, Lucia Martinez, Irma Acuña, Peter Acuña, Veronica Acuna, and Alicia Acuña) whose combined efforts helped to make the Angels Project a success!

This year's Angels Project was funded by a grant from FAIC. Both WAAC and the Pascua Yaqui Museum are extremely grateful for this support. Likewise support for the project was offered by the Pascua Yaqui Tribe. Special thanks to Irma and Peter Acuña and their daughters for the traditional Yaqui food that they prepared for our lunch!

In addition to the generous support from FAIC and the Yaqui tribe for the Angel's Project, WAAC also received funds to support the annual meeting from Tru Vue, Ota House Fine Art Framing, and the Arizona State Museum. On behalf and the WAAC board and the membership, I thank all of our sponsors for their support!

Before I end, special heartfelt thanks go to the deeply dedicated WAAC board members for all of their patience, moral support and hard work in planning and facilitating the annual meeting and all that it entails. Even after having previously served as WAAC Secretary for several years from 2005 to 2009, there was still much for me to learn about WAAC as an organization and what makes it tick!

The rotating Members-at-large bring new voices and identity to the board — we say good bye to out-going MALs Sarah Melching and Susi Friend, and welcome incoming Jennifer McGlinchey Sexton and Samantha Springer and the new VP Mark MacKenzie — while the standing board members play an incomprehensible and absolutely invaluable role in keeping the organization running. Your guidance and tutelage was greatly appreciated, and now after the dust has settled, I have a newfound respect for this organization and the people behind it! I can't speak highly enough of our colleagues who keep this organization running, and I hope that each of you will consider serving on the WAAC board in one capacity or another!

With that, I turn over the presidency to my dear friend and colleague, Randy Silverman, and I look forward to seeing you all next year at the WAAC meeting in Salt Lake City!

Sincerely,

Terri

Alaska

Helen Alten and staff at the Haines Sheldon Museum attended the American Association for State and Local History online conference in mid-September. This was their first time attending a national conference “virtually.” It was an experience well worth having and will be part of annual staff training in the future.

The *Haines 50* exhibit—highlighting 50 objects from the Sheldon Museum collection—has received extremely positive feedback all summer, with many requests that a book be created from the exhibit. A number of large stone sculptures have been added to the museum’s grounds. Two arrived in the spring and seven more at the end of September. The sculptures were made by local Haines stoneworker Judd Mullady.

Ellen Carrlee led an Angels Project for a dozen museum participants to help the Sealaska Heritage Institute rehouse more than 20 Northwest Coast textiles. She also led a spruce root basketry conservation workshop at the Museums Alaska conference, and co-presented a discussion of the treatment and exhibition decisions for a historic Bristol Bay fishing boat.

Tlingit weaver Anna Brown Ehlers has been in the conservation lab restoring a Chilkat robe from the Alaska State Museum collection. Buffalo State graduate student **Paige Schmidt** will be spending her internship year “20-day option” working on an open-skin boat (*umiaq* and *angyaq*) project.

Scott Carrlee has been providing conservation and museum assistance for small museums in Port Alexander, Haines, and Skagway; supporting four museum studies interns in the field, as well as spending some personal time supporting the remote and rugged Cape Decision Lighthouse Association with historic renovations in an epic week-long work party.

Lisa Imamura just graduated from the conservation program at Queen’s University and completed her internship with the Royal BC Museum in Victoria,

British Columbia with **Lisa Bengston**. Imamura did her pre-program work at the Alaska State Museum and is back again working across various departments.

Nicole Peters just graduated from the conservation program at Buffalo State and completed her third-year internship with **Nancy Odegaard** at the Arizona State Museum. Peters has settled in Skagway, Alaska with a private practice and will be assisting the Anchorage Museum with its new gallery renovations as well as working for the U.S. NPS on the historic Proenneke Cabin in Lake Clark National Park & Preserve.

Monica Shah, along with **Sarah Owens**, conservation technicians **Elissa Meyers** and **Claire Sumner**, and collections staff de-installed over 1,500 objects from a 30-year-old exhibition. Some of the best of the Anchorage Museum collections were exhibited in this gallery, as well as some of the largest – a 4,000 lb. boat and 6,000 lb. section of a pipeline, both of which had to be craned out of the building’s second story. Most of the objects were then installed in a visible conservation lab and storage space, where they will be examined and treated over the next year. Monica also was able to attend the statewide museums conference in Juneau and attend a spruce root basketry conservation workshop taught by Ellen Carrlee.

Regional Reporter:
Ellen Carrlee

Arizona

Marilen Pool recently completed a preservation plan for the historic properties of the South Rim Xanterra Resorts at the Grand Canyon, and has also conserved the Fulton furniture collection at the Amerind Museum. At the Arizona State Museum, Marilen continues treatment of selected ethnographic baskets. She will be continuing on as project conservator for another IMLS project to work with the archaeological perishables collections there.

The Linda Morris Studio, LLC has moved to 7669 E. Palace Park Loop, Tucson, AZ 85710-1457 and is in the process of organizing the work space more efficiently and settling in.

The staff in the conservation lab at the Western Archeological and Conservation Center (WACC) had a very full summer. The staff, interns, and contractors temporarily expanded from 3 to 8 people in all! Graduate intern **Stephanie Cashman**, from Buffalo State College, spent her summer with us treating a range of collections from archeological metals and textiles to a historic tin chandelier.

Conservation technicians, **Amy Molnar** and **Brenna Stonum**, continued creating microclimates for archeological metal collections from multiple southwest national parks and treated several unstable metal objects. **Maria Lee** focused on treatments and storage upgrades for prehistoric textiles from Tonto National Monument.

Graduate student **Heather Lim**, from the Bureau of Applied Research in Anthropology at the University of Arizona, created custom storage supports for a significant number of prehistoric sandals from several southwest parks including Canyon de Chelly.

Audrey Harrison focused on treatments for basketry materials from the Grand Teton National Park museum collections, and **Maggie Hill Kipling** spent significant time over the summer wrangling Stablitex into beautiful stabilization treatments of both silk and wool elements on the Grand Teton collection materials.

Dana Senge recently had the opportunity to travel to Yellowstone National Park to help de-install a very large wood veneer map from Mammoth Hotel and transport it to the lab in Tucson for a maintenance treatment while the hotel undergoes building renovations.

The whole WACC conservation team came together to vacuum and inspect over 500 textile objects from Fort Davis National Historic Site after a clothing web moth infestation was discovered at the park!

Regional News, continued

On April 18th **Nancy Odegaard** was awarded an Honorary Doctorate degree at the University of Gothenburg in Sweden for her contributions to conservation. Nancy's colleague and host, **Elizabeth E. Peacock** in the Department of Conservation said of the award, "The appointment of Professor Odegaard as honorary doctor at the University of Gothenburg will lead to future collaborations, in particular with the University of Gothenburg-sponsored Centrum för Critical Heritage Studies." In August, Nancy was also a discussant at Gordon Research Conference, an international forum for presentations and discussions of frontier research in the biological, chemical, and physical sciences.

Also this fall she presented at Western Museums Association (WMA) and Association of Tribal Archives, Libraries, and Museums (ATALM) conferences, as well as the Penn Symposium.

Teresa Moreno coordinated plans for the WAAC meeting in November in Tucson. She also recently helped install the *Pieces of the Puzzle* exhibit. **Gina Watkinson** has been accepted into the School of Anthropology at the University of Arizona and started this fall where she plans to research archaeological fibers. She participated in the WMA and ATALM conferences.

Marilen Pool continues work on the basketry conservation project and participated in the WMA, ATALM conferences and the Penn Symposium. **Wendy Lindsey** was awarded a PTT grant to research non-destructive methods for the analysis of residues. **Nicole Peters** completed her 3rd year graduate internship and now resides in Alaska.

Victoria Kablys completed her graduate summer internship and has returned to Queens University. **Elyse Canosa** completed a repatriation testing and documentation project and has finished her doctoral dissertation on the corrosion of daguerreotypes. **Leah Bright** joined the lab as a third year graduate intern from Winterthur/University of Delaware Program in Art Conservation

(WUDPAC). **Betsy Burr** just began as the Kress Post Graduate Conservation Fellow after a three-month contract with the National Park Service in northern Arizona.

Regional Reporter:
Dana Senge

Hawaii

As of June 30, 2016 **Margo Vitarelli** is off enjoying the first phase of her retirement from The Manoa Heritage Center.

At Doris Duke's Shangri La in Honolulu, Hawai'i, **Elizabeth Asal** just finished a six-month pre-program internship; we wish her all the best in her future studies. With support from the Doris Duke Charitable Foundation, the Honolulu Museum of Art is redesigning the Islamic art galleries, and the new installation will feature works from Shangri La. Conservator **Kent Severson**, with help from technicians **Lynne Najita** and **Gilbert Martinez**, has been busy treating three dimensional objects, while local contractor **Larry Pace** prepares two oil paintings on canvas for the exhibit.

Working on an Alain Le Yaouanc painting done in the 1970s for a client in London, **Dawne Steele Pullman** will soon be back in Hong Kong for work that awaits her arrival.

Thor Minnick recently completed an anoxic treatment of a near life-size 15th-century polychromed wooden statue of St. John the Evangelist for the Honolulu Museum of Art, and is currently treating a 19th-century Islamic, Indian (Goa) carved wood, ivory, and ebony inlaid wood table for the Doris Duke Foundation for Islamic Art at Shangri La.

Regional Reporter:
D. Thor Minnick

Los Angeles

RLA Conservation has been involved with several new initiatives related to conservation in Cuba. **Rosa Lowinger** was a featured speaker on the topic of Havana's historic nightclubs and their preservation at Palm Springs Modernism Week and at the American Institute of Architects Spring 2016 Committee on Design conference held in Havana, Cuba. Rosa served as co-curator of the exhibit *Promising Paradise: Cuban Allure, American Seduction* that ran at the Wolfsonian Museum in Miami Beach from May 5-August 15, 2016. It will be traveling to a West Coast venue in early 2017. Stay tuned!

RLA senior architectural conservator **Kelly Ciociola** spoke on "Steel in Public Art" at the 2016 MIT Architectural Iron and Steel conference and on the "Miami Marine Stadium" together with **John Fidler** at the Getty Foundation's "Keeping it Modern" concrete conservation symposium in London.

RLA senior architectural conservator **Christina Varvi's** work to conserve historic tile fountains at Santa Barbara's Casa del Herrero was featured in the museum's March publication. RLA has made several new hires: conservators **Jane Ashburn** (Clemson/ College of Charleston) and **Yenny Cabrera** (Havana Instituto Superior de Arte) have joined the East Coast office and technicians **Nelson Hallonquist** and **Noe Martinez** joined the Los Angeles studio.

Dawn Jaros and **Caitlin Jenkins** of the Margaret Herrick Library's Conservation Department of the Academy of Motion Pictures of Arts and Sciences extend a warm welcome to their new conservation technician, **Courtney Azzara**. Courtney started mid-August and has already worked on several projects at the library, from poster treatments to 35mm slide rehousing. The lab is very much looking forward to working with Courtney on the library's unique and challenging projects. **Tania Collas** and **Marina Gibbons** from the Natural History Museum of Los Angeles County are working on the international exhibit loan of a collection of early Hollywood

Regional News, continued

artifacts related to the life and works of Carl Laemmle, founder of Universal Studios. The artifacts include fascinating movie props like a bat from *Dracula* (1931), a papier-mâché quarter-side of beef from *All Quiet on the Western Front* (1930), and a spool of mummy wrappings from *The Mummy* (1932), among many others.

At the recent IIC Congress in Los Angeles, LACMA conservation scientist **Charlotte Eng** gave a presentation, "Reflections on Light Monitoring: Evaluation of Museum Lighting Options for Modern and Contemporary Art." **Terry Schaeffer** and **Frank Preusser** were coauthors on the work.

Conservation science Mellon Fellow **Laura Maccarelli** was coauthor of a poster, "The Dilemma of Fading Food," on the light sensitivity of Ruscha screenprints made with inks prepared from food materials. Laura also presented a talk on some results from her HPLC dye analysis project at the 35th meeting of Dyes in History and Archaeology this October in Pisa, Italy.

Rebecca Pollack, current Mellon Fellow in paper conservation at the Philadelphia Museum of Art, taught a one-day intensive workshop on watercolors for LACMA paper conservators, which is, of course, the primary colorant used in paintings on paper. She also provided a comprehensive list of pigments suitable for a paper/photo inpainting palette, with detailed information on binders, fillers, and sheen. Rebecca instructed LACMA paper conservators on how to make pan colors that are not commercially available. LACMA paper conservators are now developing several new sets of watercolors specifically for color compensation of photographs and contemporary prints and posters.

Rebecca developed a comprehensive knowledge of artists' materials during her years as manager and technical advisor for Kremer Pigments Inc. in New York, and has given various workshops on manufacturing historical and contemporary paint materials to artists and conservators.

Erin Jue, with colleagues **Naoko Takahatake** and Charlotte Eng, published, "The Examination and Conservation of a Chiaroscuro Woodcut," as an online publication by Taylor and Francis.

LACMA paintings conservators completed several projects over the summer and early fall. **Joe Fronck** restored Gerrit Berckheyde's *The Nieuwezijds Voorburgwal with the Flower and Tree Market in Amsterdam*, in preparation for the National Gallery of Art exhibition, *Drawings for Paintings in the Age of Rembrandt*.

Elma O'Donoghue treated a recent acquisition, a large colonial painting on copper by Nicolás Enríquez, *The Visitation and the Birth of Christ*. The painting joins two others from a series by Enríquez in LACMA's collection.

Jini Rasmussen treated another recent acquisition, also a colonial painting on copper, *Saint John Nepomuk*, by José de Páez. **Kamila Korbela** checked and prepared paintings for *L.A. Exuberance: New Gifts by Artists*.

Miranda Dunn completed the graduate training program at the University of Delaware/Winterthur and is continuing her second year at LACMA as a Mellon Fellow in the paintings lab. Miranda will be working on a large Spanish panel by a follower of Andrés Marzal de Sas, *Saint Michael Fighting the Dragon*.

This spring at the UCLA Library, Audio/Visual materials specialist **Yasmin Dessem** was awarded a \$40,000 grant from the John Randolph Haynes Foundation to complete preservation measures and digitize rare home movies from the Golden State Mutual Life Insurance company, many of which are now online. **Shani Miller**, a graduate of the UCLA Moving Image Archives Studies, is working as a much needed assistant on this project.

Kimi Taira was snatched out of LA to join the staff of the Asian Art Museum conservation department in San Francisco. LACMA will miss her but the conservators look forward to her visits!

Hannah Moshier is continuing her invaluable work as a conservation assistant at UCLA Library and has been making headway with the backlog of complex circulating materials conservation treatments. She recently created a very useful decision-making tool for handling a large and complex digitation project related to the library's Hebraica collection.

Preservation officer and department head **Dawn Aveline** traveled to Cuba again last summer to collaborate with colleagues there as part of the UCLA Library International Digital Ephemera Project. This trip focused on creating 1,300+ high-resolution images of cinema posters at the Instituto Cubano del Arte e Industria Cinematográficos.

In September, **Chela Metzger** and Duke University Library senior book conservator **Erin Hammeke**, presented on historical Pennsylvania German bookbinding characteristics at the Guild of Book Workers Standards of Excellence Seminar in Charleston, SC.

UCLA Library's Buffalo State Art Conservation Program third year intern, **Amanda Burr**, started in October after completing a short internship in Leiden where she worked with **Karin Scheper** on Islamic books.

The lab is pleased to announce that UCLA Library's application for a Kress/FAIC Conservation Fellowship grant was awarded, so they are now recruiting for a Kress Assistant Conservator for a limited-term appointment this fall.

Finally, UCLA Library closed down the lab for a couple months while they moved to a new location at Powell Library. After years of trotting between buildings, the lab is excited to be in a space on campus closer to the library's collections which also reunites the staff with the preservation officer, Dawn Aveline, and audio-visual specialist **Yasmin Dessem**.

Leslie Rainer and **Susanne Friend** organized and led a downtown mural

Regional News, continued

walking tour in collaboration with the LA Conservancy as an activity during the IIC 2016 Los Angeles Congress. They were helped by **Kiernan Graves**, **Rachel Burch**, **Marie Svoboda**, and **Lori Wong** for tour planning and implementation.

The tour covered nearly 100 years of interior and exterior murals in LA, with a visit with artist Eloy Torres, who was conserving his mural, *The Pope of Broadway*, on the Victor Clothing Building. Completing the tour was a bonus visit to the Siqueiros mural, *América Tropical* on Olvera Street.

Regional Reporter:
Virginia Rasmussen

New Mexico

Conservation Solutions Inc. (CSI) recently completed projects that include a three-year project providing conservation oversight at West Block on Parliament Hill, Ottawa, ON; the de-installation, cleaning, and reinstallation of a rooftop copper weathervane; laser cleaning of the U.S. Capitol's north exterior; conservation consultation at the Old Post Office building in Washington, DC; an assessment of an historic chemical hearth at University of Virginia; the stabilization and restoration of a steam launch boat in Ottawa, ON; and conservation of the granite and bronze National War Memorial in Ottawa, ON.

CSI's current projects include the treatment of historic horse-drawn hearses in Champlain, ON; the assessment and development of a conservation plan of a public art collection in Calgary, AB; laser cleaning of exterior masonry and bronze elements at several iconic building in Washington, DC; the assessment and treatment plan development of five missile prototypes in Baltimore, MD; and treatment of several Army Museum artifacts including cannons and tank barricades faced by soldiers during D-Day. CSI conservators presented a workshop entitled, "Conservation of Metal Finishes in Modern Architecture" at the National Trust Conference in Hamilton, ON on October.

M. Susan Barger, the online community coordinator for Connecting to Collections Care (www.connectingtocollections.org), a program that provides no-cost resources, assistance, and professional development opportunities for smaller cultural institutions, reports that the Foundation of the American Institute for Conservation (FAIC) has been awarded a National Leadership Grant from the Institute of Museum and Library Services (IMLS) for the continued support of the C2C Care program.

Regional Reporter
Silvia Marinas-Feliner, M.A.

Pacific Northwest

The Seattle Art Museum (SAM) conservation department welcomed **Geneva Griswold** as their new associate conservator. Geneva will be working on SAM's historic objects collection and one of her first tasks will be the preparation of collections for a major storage move at the Asian Art Museum (AAM), which will undergo seismic and HVAC renovations next year.

Marta Pinto-Llorca and **Nicholas Dorman** are both working on art move logistics and storage upgrades in association with the renovation project. In August, **Peter Malarkey** and **Jennifer Myers** surveyed 60% of the museum's paintings in preparation for the storage move. Planning is also underway for a new conservation studio at AAM for the treatment of Asian paintings, and Nick has developed an outline for expanded conservation operations there thanks to a planning grant from the Andrew W. Mellon Foundation.

Earlier this summer, Nick, **Liz Brown**, and **Ria German-Carter** treated several important modern works of art for the *Big Picture* exhibition which celebrates the donation to SAM of Virginia and Bagley Wright's collection. Liz also completed work this summer on Beverly Pepper and Tony Smith sculptures at the Olympic Sculpture Park.

Exhibitions continue to drive the work of the Royal BC Museum Conservation Department. The public conservation exhibit on fire recovery at the U'Mista Cultural Centre has been a resounding success, mainly through the efforts of **George Field**. Also assisting on that project were **Lisa Bengston** and contract conservator **Rachel Stark**.

Unfortunately, SAM recently said goodbye to Rachel so that she could pursue another opportunity at a shipwreck site in Sicily. Congratulations Rachel!

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

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

Kasey Lee is working with **Heidi Swierenga** from the University of British Columbia's Museum of Anthropology and **Elisabeth Czerwinski** from Burnaby Village Museum to develop a regional emergency response network based on a proposal submitted by Heidi to the Federal Government. That work is now supported by a Museums Assistance Program grant and will involve a disaster recovery workshop later in the fall. **Colleen Wilson** and **Betty Walsh** are heavily involved with artifact condition assessments of textiles and archival materials for the *Families* exhibit next spring.

Corine Landrieu has been busy working on outdoor sculptures for local city and state agencies, which included a Tlingit pole in Pioneer Square, for the city of Seattle. The pole was treated in

Regional News, continued

collaboration with **Tiffany Hedrick** from the Office of Arts & Cultural Affairs. She is now completing treatment on a series of plaster tiles from the ceiling of the Chinese Room, located in the historical Smith Tower.

Lisa Duncan gave birth to **Irma Rosina Goedecke** on July 6, 2016. Mom and baby are in good health, and Lisa is enjoying a bit of maternity leave while keeping a toe in the lab.

Regional Reporter
Corine Landrieu

Rocky Mountain Region

Camilla Van Vooren performed a condition survey of the paintings in the collection of the Anchorage Museum in June in preparation for the upcoming rehang of the main gallery and the opening of galleries in a new wing. **Yasuko Ogino** treated a group of paintings on site at the Utah Museum of Fine Arts in Salt Lake City in July in preparation for the opening of their remodeled galleries.

At that same time, **Carmen Bria** treated a small mural by famed Utah artist Lee Greene Richards at a private residence in SLC. The home was built by the artist's brother in 1918 and the mural painted in 1920.

Carmen also performed a condition survey at the new Topaz Museum in Delta, Utah that is dedicated to the art and the people who spent time at the Japanese internment camp located nearby during WWII. Interestingly, there was an art school of sorts at that particular camp near the Topaz Mountains outside Delta.

D. Hays Shoop performed a condition survey of murals in the Montana State Capitol in Helena in August.

At the Center of the West the conservation

interns this summer in the lab included 4 pre-program university graduates: **Nicole Schmidt, Allison Rosenthal, Vanessa OMayor, and Michael Tusay**. Allison Rosenthal, with the assistance of many of the interns, completed a comparative XRF study of the Center's Proctor bronzes.

Allison, who is currently a student in the North Bennet Street School book program, taught the interns the basics of book conservation so that they could carry out treatments on rare books in the Center's library.

Three university students, **Dee Rudolph**, BYU ceramicist, **Luisa Walter**, painter at NWC, and **Tyler Loveless**, student in the gunsmithing program at Trinidad State College, plus two Cody High School students, **Effie Clark** and **Clair Pfister** joined the conservation team in carrying out many conservation treatments including working on a 150 million year old ichthyosaur fossil. In all, the interns completed over 50 treatments!

Lauren Gottschlich, third-year graduate intern in the Winterthur/University of Delaware Program in Art Conservation and currently at the Denver Art Museum visited the lab of the Center of the West and acted as a mentor and information source for the lab's interns.

Beth Heller is celebrating 5 years conserving works of art on paper and historic documents in the Rocky Mountains and is happy to have rejoined WAAC after an inexplicable absence. She was lucky enough to attend the Voices in Contemporary Art conference in Denver, which was inspiring and highly recommended. Current work includes the completion of a 6 year collections management project for the American Alpine Club, conservation of a group of 17th-century Christopher Wren architectural drawings for the Cherokee Ranch and Castle in Colorado Springs, a two-sided, large format irrigation map for the Colorado State University Water Library, and a series of 18th-c. botanical illustrations from the oldest seed company in France.

Beth assisted **James Squires** in teaching an undergraduate conservation course at the University of Denver this past spring and will give a lecture this fall to art history students at the University of Colorado Boulder Art Museum regarding a group of Baroque drawings she recently conserved.

Julie Parker recently completed treatment of a large painting on leather in collaboration with Camilla Van Vooren, and is grateful both for Camilla's expertise and camaraderie on the project.

The Colorado conservation community welcomes **Jennifer McGlinchey Sexton** who recently relocated to Colorado Springs from Boston, where she worked with **Paul Messier**. Jennifer has opened a private practice specializing in paper and photographs.

Regional Reporter:
Julie Parker

San Diego

No news at this time.

Regional Reporter:
Frances Prichett
Paper Conservator
San Diego, CA
fprichett@yahoo.com

San Francisco Bay Area

The textile conservation lab at the Fine Arts Museums of San Francisco (FAMSF) is getting ready for its version of San Francisco's Summer of Love with an exhibit that will include some 50 costumes—most from local lenders—that is slated to open in April of 2017. Treatment has been expedited because there is an exhibition catalog, and those fringed, embroidered, patched, beaded and sequined costumes need to be at their accessorized best for photography!

Regional News, continued

In addition, **Anne Getts** is preparing to collaborate with **Beth Szuhay** of Chrysalis Art Conservation, on the in-painting treatment of a 16th-century verdure tapestry in the permanent collection. This will involve using Lascaux Sirius Primary watercolors on previous and stable repairs that are currently disfiguring the woven images.

This is an unusual treatment in the museum conservation world, but one that has been thoroughly researched, undertaken, and published by **Mieke Albers** of the Rijksmuseum (Icon Textile Group 2012). A time-lapse video of the treatment will be created to be shared with colleagues and the public.

Following her fellowship at the Getty, **Ellie O'Hara** joined the Fine Arts Museums of San Francisco objects lab and has been busy working with **Tracy Power** and **Molly Lambert** to conserve the statue *El Cid Campeador* outside the Legion of Honor.

Regional Reporter:
Alisa Eagleston

Texas

Anne Zanikos attended a masterclass on loss compensation for paintings presented by **Laura Fuster-Lopez** in Lisbon, Portugal. The workshop covered the latest research in fill materials and their impact on the original painting structure.

Earlier this summer, several representatives from the Menil Collection Library conservation department in Houston participated in a two-day disaster response and recovery workshop hosted by the Texas Cultural Emergency Response Alliance (TX-CERA) at the Museum of Fine Arts, Houston, in order to advance their training and preparation for disasters within the Houston area.

The Menil Collection assistant paintings conservator, **Katrina Rush**, who has recently joined the TX-CERA steering committee, presented at the workshop

and helped instruct participants on procedures for handling water-damaged paintings.

Meaghan Perry, a second year student in the Art Conservation Department at the State University of New York College at Buffalo, joined the Menil's Assistant Objects Conservator **Kari Dodson** for an eight-week internship this summer. Meaghan focused on the treatment of several complex sculptures by Ed Keinholtz and George Herms in preparation for exhibition this fall.

Additionally this summer, **Taylor Bailey**, a senior at Southwestern University, joined the department as a pre-program intern.

In July, **Jan Burandt** (conservator for works of art on paper), **Grace Walters** (paper conservation technician), **Desi Peters** (Mellon Fellow), and summer interns Meaghan Perry and Taylor Bailey presented on the pathways to a conservation career by sharing their various professional and educational experiences with a small audience in the conservation studio as part of the Menil's "Noontime Talks" membership series.

Regional Reporter:
Ken Grant, Paper Conservator

WAAC Publications

Handling Guide for Anthropology Collections

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

Price: \$10.00

(\$8.00 copy for orders >10 copies)

Back Issues of WAAC Newsletter

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

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Standing Up To Travel

The Victoria and Albert Museum has been travelling multiple dressed ensembles on their display figures since *Art Deco 1914 - 1939* went out on tour over ten years ago. This exhibition featured approximately twenty four couture ensembles of the 1930s and toured seven venues internationally. It became one of the most highly visited shows in the Museum's history of temporary exhibitions.

Most of the figures used in *Art Deco* were simple dress torsos on a solid central pole with a balanced centre of gravity. These figures were headless and armless and although some pieces were delicate, they were sufficiently robust to trial this method of transporting dresses for a large touring exhibition. A group of six tight fitting bias cut dresses were selected for dressed vertical travel. The decision to adopt this approach was initially taken in order to reduce the handling of garments at multiple venues as well as to save on the time and cost involved with dressing and undressing figures.

As is now established practice for dressed torsos, each of the six *Art Deco* ensembles had its own wooden crate to which the flat metal base of the dress stand was secured at the bottom (Fig 1). A baton with a cut-out for the neck held the torso upright inside the crate and was screwed into position from the outside. This allowed the torso to be securely fixed inside the crate without any pressure on the garments and various layers of silk padding helped to control any movement of the pieces. (Flecker, Haldane, Ashbridge 2005)

Fig 1. Mounted bias cut dresses packed inside individual wooden crates.



Temporary exhibitions with a large amount of costume or fashion have continued to be a popular draw for audiences, and V&A dress exhibitions are much in demand internationally. The V&A textile conservation studio has needed to be increasingly creative in the production of mounts and soft packing in order to safely crate and transport more ambitiously displayed ensembles.

Fig 2. An example of a spigot fixing.



Increasing curatorial and designer requests for full figure mannequins with heads, arms and legs have necessitated further development in the packing and crating. With limbs that easily detach and exaggerated poses that are often unstable, full figure mannequins are less straightforward to transport. In addition the spigot fixings (Fig 2) that hold these mannequins upright were identified as too weak to withstand the rigours of travel.

In 2005, a high water mark was reached with the packing and crating of a costume

featured in the exhibition *Surreal Things*. The ensemble, which was a fragile head to toe knitted leotard, needed full bespoke padded protection. The figure was packed horizontally to bypass the use of the spigot stand, and in order to keep the mannequin from moving and limbs detaching inside the leotard, a complex system of supports were fixed inside the crate (Fig 3). (Haldane, Flecker, Ashbridge, Monaghan 2007)

Fig 3. Packing a dressed mannequin from 'Surreal Things' horizontally.



Although successful, the amount of work required to produce this sophisticated packing was not sustainable, particularly for shows that included large numbers of mounted costumes. We began to look at the possibility of requesting certain adaptations to mannequins at the point of

purchase that would allow us to transport dressed ensembles on full figures more easily and safely.

The first specific travel adaptation was carried out in collaboration with H&H Sculptors whilst producing mannequins for the *Wedding Dress* exhibition. The arm fixing was changed from the classic key, lock down style to a large bolt and wing nut (Figs 4a & b).

Fig 4a. Classic key lock arm Fig 4b. Bolt and wing nut arm fixing.



This alteration prevented arms from ‘jumping’ out of position in transit without being braced inside the crate. This type of bolt fixing required a removable head in order to secure the wing nuts. This was later recognised as a desirable feature because a headless upright mannequin could comply with air freight height restrictions when crated.

The V&A continued to travel full figure mannequins lying down due to the weakness of the spigot fixing. However by 2010 the exhibition programme included two major costume shows, *Hollywood Costume* and *David Bowie Is ...* Both of these ambitious exhibitions included huge numbers of mannequins scheduled for long international tours, and the need for change became increasingly important.

Fig 5. A David Bowie mannequin with extended internal metal work, packed vertically in a protective Tyvek bag.



Working with Proportion London Ltd, the weakness of the spigot fixing was discussed by V&A technicians, conservators, and costume mounters. We reached the conclusion that the fragility was caused by the short length of the internal ankle rod into which the metal spigot fits. The obvious solution was to extend the internal rod up the leg and into the waist, therefore lessening the weakness in the ankle and distributing the stress.

Mannequins for these two exhibitions were therefore made with this extended internal metal work and have successfully travelled around the world in a vertical position (Fig 5). This in turn reduced the amount of soft packing required, cutting costs and handling at each new venue.

As the difficulties of transporting full figure mannequins have been resolved, their use has become a popular choice amongst V&A curators, particularly for fashion and performance exhibitions. However, mannequins come with additional snags. Their contemporary sizing can be problematic as they are frequently found to be too large for both catwalk and historical garments.

The most significant adaptations that Proportion have made for us is to reduce the overall circumference dimensions of some ranges of full figure mannequins. For example, the Fluid mannequin is now available in a petite size which helps us tour a larger quantity of ensembles more safely because the fit is better and fastening secure. The V&A team have also requested that the petite Fluid is available in a single body piece (Fig 6). This one piece figure (with removable arms) means that we no longer need to secure the body to prevent the torso twisting away from the legs during transit. This was a labour intensive but crucial step that has now been partially eradicated.

Fig 6. The one piece petite Fluid mannequin made by Proportion London.



All of these small but significant adaptations have been possible due to the innovative approach of the exhibition teams and the good working relationships with our mannequin suppliers, particularly Proportion London Ltd. We look forward to the future challenges coming our way!

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3D Prints and Modern Documentation as an Adjunct to Conservation Techniques

Historic engineering, militaria, and industrial heritage are in general mass produced utilities. In case of a restoration campaign of such heritage, they are often treated in a way that can be best described as maintenance rather than conservation of historical data and material. And often historical technical data on this type of object does not exist or is very hard to find, making physical objects one of the few remaining sources.

In this case study the conservation treatment of a Second World War German EM 4M R40 rangefinder is described. For documentation and museology purposes the object was measured by hand and 3D drawn in Inventor. These digital models were printed on scale 1/10 in ABS using SLS and painted by hand to clarify the archaeological remains of the rangefinder to the museum visitor.

Introduction

The EM 4M R40 rangefinder in this project has an interesting history and was therefore worth studying. After its use by German military, it was shipped to Finland. Finland was one of the German allies during WWII but was considerably poorer at that time. It was common that obsolete technical equipment of the German army would be sold to their allied countries to upgrade their arms and help them defend the axis forces.

After its service in the post war Finnish army, the rangefinder was sold a few times, ending up back in Germany at a dealer who specializes in World War II military equipment. Subsequently it was purchased by the Raversyde Museum in 1995 and placed on top of an observation bunker at the 'Atlantikwall' in Ostend, Belgium at the same spot where it was during the Second World War.

It was on display outdoors for nearly 20 years. Due to the harsh weather conditions and salty air, the object was severely damaged and corroded. With the help of the European Regional Development funds (World War II Heritage funds), two pieces were studied, conserved, and restored: a searchlight and the rangefinder.

The EM 4M R40 Rangefinder

Rangefinders are optical instruments and were used to determine the distance of enemy targets. The German rangefinders ranged from smaller models for individual use in the field to very big stationary models, measuring a few meters in length and operated by up to 12 people [1].

Rangefinders were crucial in warfare during the world wars and should be considered very expensive 'high tech' at the time of use. They are examples of optical instruments of the highest quality ever made. Optical localization systems like the rangefinders became obsolete after the invention of the radar and disappeared.

The EM 4M R40 is 4 meters wide and was one of the bigger models. It is a long tube-like device that would be mounted on a tripod when in use. The EM 4M R40 was used in

combination with a heavy FLAK battery (for example a 8,8cm) for air defence. This rangefinder was able to locate targets from 85m to 1000m in distance [2].

This specific type was made in 1940 in the Carl Zeiss optical instruments factory in Jena, Germany. During the Second World War, more than 80% of the factory production was war material for the German army [3]. Big rangefinders like the EM 4M R40 were in use on land, trains, and ships and were widespread in the Atlantikwall complex on the Atlantic coast of Europe



The EM 4M R40 of this case study before restoration in its setting on a bunker at the Raversyde Museum in Ostend, Belgium. The rangefinder is positioned on a tripod, in the front of the picture is the transport chest.



A historic photograph of a EM 4M R40 rangefinder in use by German Soldiers in Lapland (Bundesarchiv bild 1011-110-1699-21 foto Fasshauer 1943/1944) .

Restoration and Conservation of Large Technical Objects

The care of large technical objects like military and industrial heritage is in many cases performed by people who know them, have worked with them, and have an intrinsic deep respect for the object, but are not familiar with contemporary conservation ethics and the representative charters. For example, retired military volunteers often care for old military aircrafts.

Valuable technical objects are commonly cared for in a different way than fine or decorative art or other historical

objects. Very often, such an object needs to function in order to be relevant. In many cases, these types of objects are restored to earlier stages of their life, mostly to when they were in service.

In practice, this leads to excessive restoration, at the expense of information and the character of the object. A famous example of this approach is the case of the only remaining German A7V Sturmpanzerwagen from the First World War. After salvaging by Australian troops it was covered with graffiti by the soldiers and taken to Australia. After years of outdoor exhibition it was restored by sandblasting and repainting it in its 'original' color, destroying very valuable historic information [4].

In modern conservation methodology, the aim of the conservation process is to keep the object in a stable state with respect to its the history. Typically, museums do not wish to return pieces to 'in use' condition. This also seems to reflect the wish of the public, who increasingly care more about the history of the objects [5].

Modern imaging and archiving systems allow new ways to preserve valuable information, allowing better technical and historical understanding of objects.

Study and Conservation of the Rangefinder

State before treatment

The initial purpose of the conservation was to research and repaint the rangefinder so that it could be set up again on top of the observation bunker at the seawall. Due to unexpected findings and increased insight, a completely different approach was developed during examination and treatment.

In November of 2013, the EM 4M R40 rangefinder was transported from Raversyde Museum in Ostend to the workshop in Hoboken near Antwerp. (about 100 Km



Detail of the left end of the rangefinder with closed lens cap before treatment. Notice the irregular surface due to corrosion under the paint system.

distance). When carefully examined in the workshop, the object appeared to be in worse condition than was initially observed; there was corrosion present on the metal of the entire object, on the aluminium as well as on the steel parts.

A major part of the corrosion was present underneath the paint layers. At some points, the corrosion was in such an advanced stage that it created holes in the steel. Some parts of the tripod were so severely corroded that they would not have held the heavy weight of the rangefinder and would be bent or broken by manoeuvring.

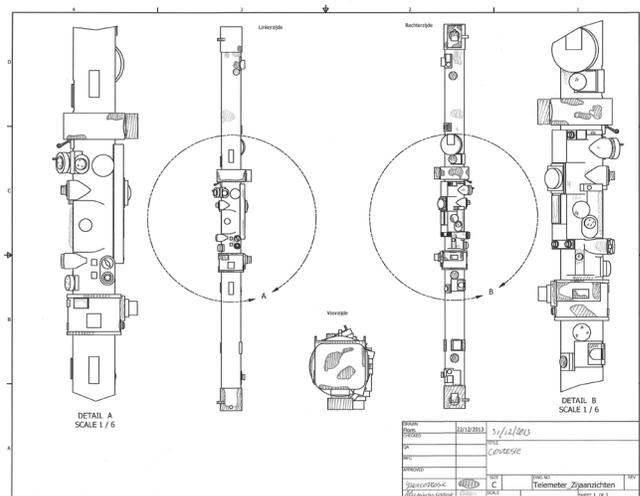
Documentation

When looking for an easy and useful method for recording the different forms and positions of the damage, and as no technical information or drawings could be found, we decided on creating a 3-dimensional digital reconstruction of the object. Detailed and scaled drawings of the entire rangefinder and its tripod were made using Autodesk Inventor 2014 software.

For this purpose the entire object was measured by hand with conventional techniques. The 3D digital models were plotted to technical drawings that were printed on paper. These printed drawings were used in the workshop to quickly record damage, places where different conservation methods were tested, and places where samples of the corrosion and layers of paint were taken.

Because the recording process was on-going during the conservation treatment, markings were done by hand with coloured pencils on the printed version that was later scanned for further editing.

This method of documentation proved to be much more efficient than other techniques, such as using photographs and Photoshop techniques to mark such positions.

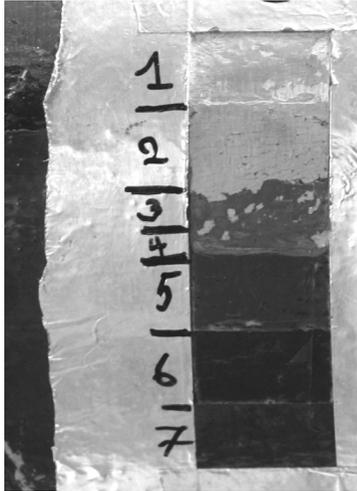


The digital model as a technical drawing used in the workshop to document conservation problems. Red zones are corroded iron, green zones are corroded aluminium.

3D Prints and Modern Archiving as an Adjunct to Conservation Techniques, continued

Paint Layer Research

The paint was examined by stratigraphic examination of the layers cross referenced with microscopic samples of paint layers. The stratigraphic research was conducted by removal of sequential paint layers.



One of the paint layer stratigraphies on the rangefinder. Layer one is the primer paint, layer two is the original finishing. Three and four is the Finnish paint system. Layers five to seven were done by the Raversyde Museum.

(The *Newsletter* apologises that we cannot present this in color. Editor)

The microscopy research was conducted by mounting and polishing samples in clear epoxy resin. These samples were polished using Micromesh sandpaper then examined using a Reichert metallographic microscope.

A 200X magnification of an imbedded sample. Sequential paint layers and even pieces of rust can be distinguished. The beige layer at the bottom would be the original colour. On top of that we find in this case only grey overpainting.



This sample was taken from an area that was either stripped of its Finnish green overpainting or where that layer was damaged.

The analysis was done on multiple areas of the object, the tripod, and transport chest. By studying the layers of paint, we hoped to get insight into the degradation patterns and the different colour schemes over time, in order to fulfill the museum's initial goal of the project, which was to repaint the rangefinder.

Interpretation of Paint Layer Research

Study of the paint analysis, however, yielded interested and complicated results.

The chest in which the pieces were stored and transported was probably made directly for the Finish army, as the only colour on the chest was the typical Finish green colour, which was applied directly onto a metal coating (probably containing tin).

The rangefinder itself had a typical 'Dunkelgelb nach muster' color (a dull mustard), as seen on similar rangefinders and other German equipment.

However, study of the different colors and sequential layering of colors on the parts of the tripod yielded a different story. It became apparant that the tripod was a hybrid, constructed out of different donor pieces with entirely different histories.

Revision of Proposal

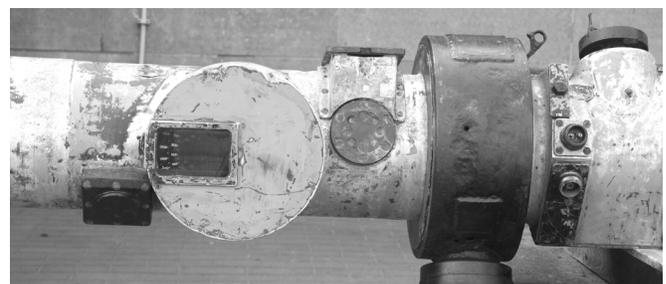
These findings challenged the initial aim, which was to repaint the rangefinder in its "original," or at least an earlier, color, as when in use by the German army. However, this would not respect the history of the overall object in any way, as it now exists. Although this is a fairly common phenomenon with historical military equipment, we did not want to ignore or lose the interesting history of the piece in the choice for its presentation.

These insights, together with the severe corrosion conditions were reported to the museum and an alternative treatment was proposed. Instead of removing all of the old paint and corrosion, it was suggested that as much material as possible would be kept and the object would be conserved as an archaeological finding. In practice this would mean removing or stabilising corrosion and consolidating loose pieces of paint. The museum agreed with this solution.

Conservation Treatment

All of the aluminium corrosion was removed using abrasive methods, together with most of the iron corrosion. Leftover corrosion of the steel was stabilized using OWATROL oil. Paint was consolidated using Regalrez 1094 in a slow evaporating hydrocarbon solvent, with addition of Tinuvin 292 UV-absorber. Afterwards, the entire rangefinder and tripod were varnished with the same recipe.

The result of these actions yielded a rangefinder with a mixture of the different colours running in no logical way up and down the surface of the object. Some parts were corroded so badly no paint could be kept. Some stakeholders even thought this appearance was a kind of special camouflage colour. The appearance of the rangefinder was so badly disturbed that it could not be shown to the public without significant background information.



Detail of the rangefinder after removal of loose paint and stabilisation of corrosion. Note the colour differentiation of bare aluminium, stabilized steel (brown), aluminium primer (azure), steel primer (red), original German paint (yellow), overpainting by Raversyde museum (grey-blue).

3D Prints and Modern Archiving as an Adjunct to Conservation Techniques, continued

Modern imaging was the solution. The Inventor drawings were made with such detail and precision that they could be used to make scaled and coloured 3D prints to be presented near the rangefinder and show the visitor where the different colours on the surface were coming from.

The Implementation of 3D Printed Models

Eventually, three different models were made using Selective Laser Sintering in ABS. One was coloured in the red and azure colours of the primer layers that were found on the steel (red primer) and aluminium (azure primer). The second model was coloured in the typical Finnish army colour (dark green), and the third was painted in the original German colours of the object, being a grey 'Feltgrau' for the tripod, and a 'Dunkelgelb nach muster' for the rangefinder.

They will be on display alongside the conserved version and will help the general public to interpret the findings on the original large version.



Conserving the Paint Versus Stripping and Repainting

The value of the information of historic paint has been described before and should not be neglected [6]. The fact is that for these military historical objects, contemporary sources were often destroyed or very hard to find, as engineering data was considered war bounty of great value. This makes the object itself the most important, and sometimes the only, source on related technical data.

During the conservation process a number of interesting things were discovered that would have been eliminated if the initial treatment (sandblasting and repainting) was executed. Among them were the differentiation between electrochemically and physically applied primers on different aluminium parts, machining marks, and even etched-in-the-surface production numbers. These details are not only an important part of the physical structure but also contain information about confidential production processes for the Wehrmacht.

Conclusion

Innovative imaging techniques can be an adjunct to the visualisation and material research of heritage.

The project described in this case study was an object that has a fragmented history, which is very common for technical/ engineering heritage. During restoration, it became clear that the rangefinder and its accessory parts were most probably mixed with other similar models of equipment during their years of service and their years at collectors. The result was a collection of parts that formed a 'complete' rangefinder in its assembled state.

Modern imaging and documentation techniques were used and offered a unique adjunct to conservation techniques; they allowed the object to be conserved in an as-is state and still be understandable for the audience. This meant that the original information like paint layers, fabrication marks, serial numbers, fragile parts, etc., have been kept and secured for the future. At the same time, the visitors to the museum now get a clear idea of the different appearances of the rangefinder now on display.

Acknowledgment

Thanks to Floris Remmen and Silas Hospied for the help with the original drawing, Erik Indekeu for the optimisation of the drawing and printing of the models, Peter De Laet for his kind help during the research. We also would like to thank Kathleen Ribbens and Elke Otten for their enthusiast engagement.

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Installation of Pierre Huyghe's Untitled (Liegender Frauenakt) (Reclining Female Nude), 2012

Introduction

In 2015 the Los Angeles County Museum of Art (LACMA) opened an exhibition of the works of the French contemporary artist Pierre Huyghe known for his controversial and eccentric art installations involving aquariums, ice-skating rinks, ants and spiders, and other assorted items. One of his most unusual artworks included in the exhibition was a life-sized concrete statue of a female figure lounging on a plinth with an active beehive on her face.

The installation of this sculpture presented a number of unique challenges to the art conservation staff and art handlers at LACMA. Given the nature of the artwork, a considerable amount of work and preparation was required in advance of the artist's arrival. The installation relied heavily on written instructions and long distance communication with the artist's studio, which proved challenging. In this paper, the authors will discuss these unique challenges with an emphasis on balancing the artist's expectations and vision of the artwork with the reality of using living organisms in an exhibition.

Fabricated in 2012, this artwork features a cast concrete female figure reclining on a plinth, with a real beehive for a head.



Figure 1. Reclining figure on plinth.

The sculpture is comprised of three main parts: the figure, plinth, and bee-hive structure (Figure 1). The figure, composed of cast concrete with a steel armature (Sikacrete 008 Self-Compacting Concrete), measures 145 x 45 x 75 cm and weighs 220 kg. The plinth, also cast concrete (A100 C25/30), measures 145 x 55 x 30 cm and weighs 300 kg. When assembled, the figure rests on the plinth, registered in position by a series of pegs.

The sculpture can be exhibited both indoors and outdoors. When displayed outdoors the sculpture develops a "patina" from exposure to the elements and to the activity of the bees which the artists considers natural and acceptable. However, if any part of this work is damaged to the extent that it changes or compromises the integrity of the work, then the damaged components must be replaced or repaired.

The "bee-hive structure" consists of a specially designed armature upon which a live bee colony constructs its wax comb (Figure 2).

The armature is made up of a series of parallel, circular yellow plastic plates possessing indentations that mimic honeycomb and is secured to the head of the sculpture by a series of set-screws.



Figure 2. Beehive structure

When the sculpture is displayed outdoors, the wax comb is inhabited by a live bee colony. When displayed indoors however, the bee hive structure simply consists of the armature covered by the empty wax comb.

For indoor display, the artist has strict guidelines to preserve the purity of the structure. It cannot be touched or exposed to extreme temperatures for fear of unnatural discoloration and/or distortion. The beehive itself will naturally age overtime, and may become slightly darker in color, and this is acceptable. If it is suspected that the hive is changing color for any other unnatural reason, the artist must be contacted.

If the beehive structure suffers an impact and is broken or compressed, then it should be repaired as possible. The "repair" of the beehive structure may actually require that a bee colony be introduced onto the beehive structure for a period of time, so that they can rebuild the wax forms that were damaged.

Installation of the sculpture

Untitled was first shown at DOCUMENTA (13) in Kassel, Germany in 2012. After much praise, it became part of Pierre Huyghe's retrospective show at the Centre Pompidou in Paris (2013), Museum Ludwig in Cologne (2014), and at LACMA from November 2014 through February 2015.

At LACMA, the sculpture was exhibited outdoors on a patio adjacent to the north entrance to the Resnick Special Exhibition Pavilion. The glass façade of the pavilion allowed the public a direct view of the art work from inside the building, though access to the patio was possible through an interior doorway.

During installation of the artwork the patio was temporarily enclosed by a five foot retaining wall which was removed at the end of the exhibition. This proved particularly challenging as the on-going construction of the enclosure



Figure 3. Patio enclosure under construction

around the patio generated considerable noise and vibration that tended to disturb the bees (Figure 3).

Though the exhibition was scheduled to open in late November, it was necessary to establish the bee colony well in advance of the exhibition. The artwork arrived at LACMA at the end of August, which only left a short period of time to cultivate a beehive large enough to completely cover the armature by the opening of the exhibition.

To delay matters further a key component to the installation and the development of the beehive process was missing: a wooden hive box. This custom designed box is critical to the establishment of live bees on the sculpture, and it was not sent with the rest of the objects from the exhibition due to custom import restrictions. Designed by the artist's



Figure 4. Hive box

studio, the box consists of two separate halves that close around the figure and lock together with a removable lid that fits tightly on top (Figure 4).

There is a small opening cut in the side of the box for the bees to enter and exit while enclosed for installation.

The complex shape of the reclining figure and the needs of the bees were both a consideration in the design of the box. It needed to fully encapsulate the head and shoulders of the figure, provide enough room for the hive to grow in size, and be able to be taken on and off without damaging the hive or disrupting the bees. In the end LACMA spent valuable time and effort obtaining technical drawings and photographs from the artist's studio and having a new box fabricated.

Establishing a suitably sized bee colony in time for the opening of the exhibition proved a major challenge. Bee colonies have a life cycle that follows the seasons. There is only one egg laying queen in a hive while there are tens of thousands of workers whose purpose is to build the hive, forage for nectar, care for the young, and produce wax and honey.

In the fall, a decrease in the number of flowering plants reduces the collection of nectar and pollen which decreases the bee population. The number of eggs produced by the queen decreases considerably and may cease altogether during the winter months. During periods of cold weather, the physical size of the bee colony also becomes smaller as the bees huddle close together, sharing body heat and feeding on stored food supplies.

As suggested by the artist's studio, a local apiary was contracted to provide a bee colony and to help establish and maintain the hive throughout the exhibition. The local apiary recommended using the Italian honey bee, *Apis mellifera ligustica*, given its docile nature and ready availability (Figure 5). (The Italian honey bee is commonly used for honey production and the pollination of crops in California.)



Figure 5 Italian honey bees with queen

Installation of Pierre Huyghe's Untitled, continued

Given the short installation window, the establishment of the beehive began in earnest even though the final placement and orientation of the artwork awaited the arrival of the artist. The reclining figure was temporarily placed on a wood support resting on dollies to allow the sculpture and beehive to be easily moved to its final location.

Preparation of the beehive

The bees were first introduced on September 22, 2014 leaving only 8 weeks until the opening of the exhibition. The transfer of bees from an existing hive supplied by the local beekeepers to the sculpture was undertaken at night when the bees are less prone to fly and are relatively quiescent.



Figure 6 . Bee hive



Figure 7. Caged queen



Figure 8. Bee transfer

The beekeepers provided a healthy young queen bee and 10-15,000 bees (Figure 6). The queen was carefully located, isolated, and removed from her hive. She was then sealed inside a small wire cage with a mini marshmallow plugging the door (Figure 7). The caged queen was secured to the top of the figure's head between two of the plastic honeycomb plates. The wooden hive box was immediately closed around the upper torso and head of the sculpture. The remaining bees from the hive were then carefully brushed into the box (Figure 8).

The box was sealed for several days to allow the bees to acclimate to their new home and free the queen by eating through the marshmallow plug in her cage. Feeders containing sugar water (a 1:1 ratio of sugar and water) and pollen were attached to the inside of the wooden hive box to stimulate hive growth and to encourage the queen to start laying eggs.

This first attempt at establishing the bee colony failed as many of the bees escaped through small openings where the hive rested unevenly on the base of the sculpture. Large numbers of bees were found outside the box huddled under the platform. These were collected and placed back into the hive box which was completely sealed with tape and foam to prevent further escape. When examined several days later, the bees were found building comb on the lid of the box and the queen was missing.

A new caged queen was introduced on September 30th along with another 10,000 bees. In addition to resealing the hive box a new lid was fabricated which was lighter and easier to remove. Brood comb from this second colony was also added and placed between the rows of the circular plastic plates in an effort increase the total number of bees and achieve the desired coverage (Figure 9). The feeder was also moved closer to the head of the sculpture.

Though the colony appeared to thrive producing large numbers of bees, the artist disapproved of the dark colored brood comb when forwarded images of the sculpture and asked for it to be removed. It was at this time that the artist also noticed that the plastic plates of the beehive structure were not parallel and were slightly misaligned.

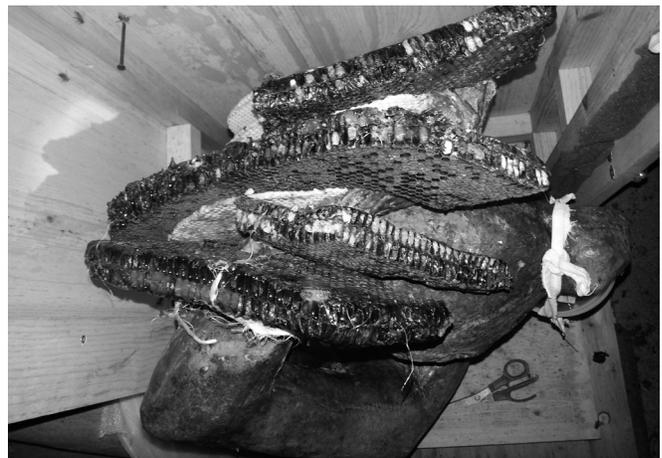


Figure 9 Brood comb in beehive structure

Installation of Pierre Huyghe's Untitled, continued

Though it was not clear prior to this time, the exact shape and color of the hive as well as the alignment of the plastic plates were critical to the artist's aesthetic. This proved to be a critical misunderstanding between the artist and the beekeepers who were attempting to balance the need to increase the population of bees (at a time of year where colony growth is slow) and achieve the desired shape and color of the hive. It was felt that if the bees could build enough new comb and increase their numbers, the beekeepers could then manipulate the shape of the hive to the artist's liking.

In the end, after numerous email exchanges with the artist's studio, most of the dark colored comb was removed though an area of fresh, light colored comb in the center of the hive structure which had the queen on it was left in place. The hive structure was then carefully realigned so as not to disturb the remaining bees.

When the hive was examined a week later, it appeared healthy and the bees were consuming considerable sugar water and drawing comb on the plastic templates though not as rapidly as hoped to produce the desired shape and size of hive in time for the opening of the exhibition. With the approval of the artist, the decision was made to cage the existing colony queen and attach it to the head of the figure and add an additional 10,000 worker bees from another colony in the hope that the worker bees would accept the queen and begin building more comb.

Unfortunately, when the sculpture was inspected several days later, the beekeepers observed large numbers of dead bees (over 25%) surrounding the hive box even though the bees on the sculpture appeared active and healthy and were drawing comb and tending brood.

Initially the die-off was thought to be due to all the surrounding construction activity associated with the fabrication of the patio enclosure, but the discovery of queen cells (Figure 10) in the hive indicated the bees were raising a new queen and that the previous queen had probably been killed by the worker bees that were added to the original colony. The dead bees outside the hive were probably worker bees that left the colony to forage but became confused or did not return to the hive when their queen died.



Figure 10. Bee hive showing queen cells

With time running out before the opening, it was decided to start over and add a new colony of 10,000 bees and their queen. Ironically, this coincided with the arrival of the artist and his studio assistants.

When the hive box was unsealed several days later in early November, the queen was found uncaged by her attendants and the workers were beginning to build new comb. However, after a week the colony was still too small to produce the desired effect.

With time running out and the head still not sufficiently covered with bees, on November 12 the beekeepers decided to once again add as many bees as possible from another colony to increase the size of the hive. This time the new worker bees were caged inside the sealed hive box for several days to allow time for the bees to acclimate and accept the caged queen (Figure 11).



Figure 11. Addition of more bees



Figure 12. Application of white bees wax

Installation of Pierre Huyghe's Untitled, continued

Prior to adding the new colony additional feeders were introduced to facilitate growth and, after much negotiation with the artist, the plastic templates were brushed with a pure white bees wax to stimulate comb production and to hide the yellow plastic template (Figure 12). When examined several days later the newly added bees had freed the queen from her cage, and they were building new comb.

Unfortunately, during this time two-thirds of the bees began building comb in the corner of the box. Four days prior to opening of the exhibition on November 19, the beekeepers made two critical adjustments. The comb was removed from the side-wall of the box and attached to the head of the figure, and the feeders were relocated to encourage growth in areas that were sparsely covered by wax comb. This ultimately proved successful (Figure 13).



Figure 13. Bee-hive prior to the opening of the exhibition

With the preparation of the hive the final installation of the sculpture was not without incident. Contrary to the beekeepers recommendations, two days prior to the opening of the exhibition the artist decided to reposition the sculpture to a new location approximately 20 feet away from its original location which required rigging the reclining figure with its hive and transporting the base to its new location (Figure 14).

Not surprisingly, continued growth of the hive was slow given the cool fall weather though it was also hampered by the on-going loss of worker bees due to the installation of a sculpture immediately adjacent to the bee sculpture (*L'Expédition scintillante, Acte 1* (weather score), 2002) which generated snow, fog, and rain. Over time the water contributed to the death of a number of bees.

Similarly, the interior lights of the adjacent museum gallery tended to attract bees returning to the hive at dusk which resulted in the loss of even more bees over time. Despite the beekeeper's concerns, it proved difficult to mitigate against these issues given the artist's vision for the installation.

Care and maintenance

Despite all these difficulties, the sculpture was a success and proved extremely popular with visitors and patrons. Its ongoing care and maintenance throughout the length of the exhibition was relatively easy. The wooden hive protection box was placed over the sculpture at night and removed in the morning. Dead bees were removed from the hive daily and the area kept clean. On rainy days the hive was covered immediately as there was no shelter from the rain on the patio. Upon de-installation at the end of the exhibition the beehive was removed by the beekeepers and relocated back to their apiary.

Safety

Though relatively docile, the Italian honeybee can display aggressive defensive behavior when provoked. If the bees sense a threat to their hive, they have been known to buzz and chase the perceived threat, animal or human, for long distances. Throughout the installation staff wore protective clothing including beekeeper suits and veils. Despite everyone's best efforts, the handling of the bees inevitably resulted in some people getting stung.

A fixed stanchion was installed to keep patrons at least three feet from the sculpture. During the day foraging bees moved rapidly back and forth from the hive and as long as they were left undisturbed, the public was relatively safe. Signage was installed on the gallery doors to the patio warning the public of the live bee colony. There was also a gallery attendant posted at the doors and outside to caution visitors and monitor their safety.

Conclusions

Installation of Pierre Huyghe's *Reclining Female Nude* proved exceedingly challenging. Establishment of the beehive took numerous attempts involving multiple bee colonies and required nearly the entire duration of the exhibition to achieve a satisfactory appearance. It's estimated that over 60,000 bees were needed in the end to build an adequately sized beehive that met the artist's expectations.

Many of the obstacles the staff faced were known and planned for: a very short installation time, the time of year related to the life cycle of the bees, and the difference in breeds of honeybee available in Southern California.

Installation of Pierre Huyghe's *Untitled*, continued

However, there were additional circumstances that added to the overall challenge of installation: the fact that LACMA was the first time the sculpture was installed in the United States; 5,000 miles of separation between the museum and the artist's studio; and the slow emergence and clarity of the artist's vision.

The beekeepers and the conservation staff only realized certain nuances of the artwork as the installation unfolded. Without the artist onsite for consultation, decisions had to be made (and in some cases un-done) based on the local

expertise of the beekeepers. The beekeepers' loyalty to the health of the bees and the artist's unfaltering vision of his artwork were at times in friendly opposition.

Acknowledgements

The authors wish to thank Pierre Huyghe and his studio for their advice and guidance throughout the installation of the exhibition and to Jarett Gregory, Associate Curator, Department of Contemporary Art, for facilitating all communication with the artist.

Figure 14. Re-positioning of the sculpture



Articles You May Have Missed

“Art Conservation Key to Preserving Cambodia’s Cultural Treasures,” Southeast Asia Globe, 06/17/2016

In Phnom Penh and Penang, experts in art conservation are meticulously preserving Cambodia’s artistic legacy, but a punishing climate and scarcity of resources have forced them to get creative.

Working to restore the artwork is Borany Mam, a French national of Cambodian heritage. She trained in Paris at the Ecole de Condé, then worked on Tibetan religious artworks before coming to the museum in 2012.

“I met the National Museum director in order to offer him my services, as I noticed some of the paintings needed urgent restoration,” says Mam. “The director was pleased and provided me with an atelier at the museum.” But it was made clear that if she wanted to carry out her project, it would have to be self-funded, spurring Mam to found the Association pour la Sauvegarde de la Peinture Khmère (Association for the Protection of Khmer Painting) in 2012.

Restoring the paintings has been her passion ever since, partly paid for from the profits of a Phnom Penh restaurant that she co-owns. If Mam’s project seems somewhat improvised, that is because it is. She is working in a field of one, being the only person in Cambodia with her expertise specialising in the conservation of preah bot, Cambodian religious paintings.

“European Museums are using Nanotechnology to Preserve and Restore Modern Artworks,” Fastco Exist, 06/17/2016

In Kurt Vonnegut’s Bluebeard, the main character, the abstract expressionist artist Rabo Karabekian, makes his works with Sateen Dura-Luxe paint. The paintings destroy themselves when the Sateen Dura-Luxe separates itself from the canvases, turning to ribbons.

Fact follows fiction. The modern materials used by artists from the last century onwards are falling apart, because plastic doesn’t last as well as oil paint. A project called NanoRestArt plans to fix this, using nanotechnology to

repair and restore these real-life versions of Sateen Dura-Luxe. NanoRestArt is almost entirely funded by the EU and will work with galleries to bring technology to restoration and preservation.

Cleaning modern works can be a difficult task, which is why the project is researching new kinds of solutions that use nano technology and material science to develop new restoration techniques. One of the participating museums is the England’s Tate, which will help evaluate the new techniques “using a range of prepared test samples and through research related to case studies of works of art from Tate’s collection.”

The hope is that these nanoscale products can get inside the polymers that make up the artworks, cleaning them from the inside, as well as stabilizing the materials. The project is running for three years, until 2018, with the participation of 27 museums, universities, and chemical companies, by which time the new techniques should have started to co-mingle with time-tested restoration techniques.

“New Mexico Scientist Builds Carbon Dating Machine that does not Damage Artifacts,” Albuquerque Journal, 06/24/2016

The contraption he built looks a little like something you might see from “The Nutty Professor.” But Marvin Rowe is no nut. That machine he built, and what it’s used for, helped Rowe win the prestigious Fryxell Award for Interdisciplinary Research from the Society of American Archeology two years ago.

“We call the process Low Energy Plasma Radiocarbon Sampling,” said New Mexico’s state archeologist Eric Blinman, who credits Rowe with inventing the process. “But a lot of people just refer to this as ‘Marvin’s Machine.’”

The process is important because, unlike other methods of radiocarbon dating that destroy the sample being tested, LEPRS preserves it. It also works on tiny samples – even a flake of ink or paint – and is considered a more accurate means of dating.

Blinman adds that, under the best of circumstances, standard radiocarbon dating requires 30 milligrams of carbon.

Rock art pigments don’t have that much carbon in them. But “Marvin’s Machine” can date material 100 millionths of a gram or less. Blinman explained that Rowe’s alternative process is based on plasmas – ionized gas made up of groups of positively and negatively charged particles, and one of the four fundamental states of matter, alongside solid, liquid and gas.

In Rowe’s non-destructive method, an entire artifact goes into in a vacuum chamber with a plasma. The gas gently scrubs or oxidizes the surface of the object to produce carbon dioxide – CO₂ – for the C-14 analysis, without damaging the artifact. The plasmas in Rowe’s machine are generated with radio frequencies, rather than electricity, and work like a cleaning agent to scrub off the CO₂.

The Archaeology Institute of America’s Archaeology magazine noted that he has refined the method to work on objects coated in sticky hydrocarbons, such as the resins that cover Egyptian mummy gauze.

“The Uncertain Future of Saving the Past,” Popular Mechanics, 06/28/2016

Art conservators fight a constant, never-ending battle against time, an unwinnable war against entropy to bring works of art back to nearly immaculate condition and keep them there.

Conservators rely on science to aid their efforts. They conduct chemical analyses of an object to determine its molecular makeup and decide how best to clean or repair it. They place a sculpture or painting in storage or on display under environmental conditions that will delay its slide into destruction.

And yet, art conservation is not quite a science. Saving the past means navigating a sea of unanswered or unanswerable questions about what the artist intended an object to look like or how efforts to fix a piece of art could damage it. Sometimes conservators make mistakes—mistakes that destroy irreplaceable objects. And though the field has become much more scientific in the past few decades, conservators still have some big questions about how to preserve the past without destroying it.

“We have to take the long view of the history of these objects,” says

Pamela Hatchfield, the head of objects conservation at the Museum of Fine Arts in Boston. Today conservators are less likely to clean objects, and there's a push to make their treatments more reversible and use them more sparingly. That's partially because of a newfound value in keeping artifacts as intact as possible. But it's also because of a larger cultural shift, an understanding that objects in museums don't show up looking just as they did when they were created, and the evidence of that doesn't need to be totally erased.

"These days we allow objects their own history, to have a trace of what they've been through," Hatchfield says. "They have a story to tell beyond just their manufacture and ancient use." But even after the painstaking restoration process, it remains a challenge to put them on display to the world without letting them fall apart.

"Jackson Pollock's 'Alchemy' Analyzed," ChemistryViews.org, 07/05/2016

Paul Jackson Pollock (1912–1956) is famed for his "drip painting" technique. Pollock poured and dripped streams of commercial paint onto the canvas from a can using a stick.

It is the nature and composition of those paints that interests both heritage scientists and analytical chemists, who might use the latent data of a Pollock to provide the art world with the details of his process and inform conservation.

Costanza Miliani of the CNR Institute of Molecular Science and Technologies (ISTM) and the SMAArt, Centro di Eccellenza, Università di Perugia, Italy, and colleagues used recent advances in non-invasive and mobile spectroscopic methods based on point analysis and hyper(multi)-spectral imaging. They employed these methods to take a close look at an early drip painting, "Alchemy" (1947).

The researchers explain how Pollock built up layers of color on top of a previously dried layer. This means that each deposit is to an extent separated from the underlying layers, forming a complex stratigraphy with some intersection between colors. "The molecular identification of pigments, colorants, and extenders contained in fifteen different paints has been achieved

combining key spectral markers from elemental, electronic, and vibrational spectroscopies," the team reports.

They add that for colors exhibiting similar hues but different chemical compositions, they used a mapping technique to compare the pigments with a false-color rendering.

The team was able to identify the specific traditional oil-based paints and oil-modified alkyd media. In addition, point analysis by reflection Fourier-transform infrared spectroscopy (FTIR) scattered throughout the painting allowed them to map the traditional and new binding media among painted, squeezed, and dripped paints. The team's non-invasive multi-technique method has revealed many details that would have remained hidden without their approach. The tool, they suggest, can acquire much information about a complex painting's chemistry and the palette used to create it.

"Another Dodgy Art Restoration Raises Alarm in Spain," The Local Spain, 07/19/2016

An amateur artist in the Spanish town of Peñaranda de Bracamonte took a restoration of a 17th century statue into their own hands recently, with less than satisfactory results.

The unknown parishioner gave the statue of Saint Michael the Archangel in the Chapel of Humilladero a makeover, much to the dismay of restoration experts. The restoration attempt, which includes adding a pair of pronounced black eyebrows and giving the statue a shiny coat of paint, was uncovered during a recent visit to the town of Peñaranda de Bracamonte, near Salamanca by a group of Heritage experts.

It had not been reported to the bishop or local authorities and had, until then, seemingly gone unnoticed. The restoration attempt has been criticized by experts, who argue that Spain is not doing enough to protect its cultural heritage. "Our work is very serious, professional and specific and not as easy as you might imagine," María Luisa López, secretary of the Association of Conservationists and Restorers of Castilla and Leon, told Catalan daily, *La Vanguardia*.

The association has criticized the lack of legal protection for artwork

and items of cultural heritage in Spain, as well as the absence of a general governing body that can oversee and approve restorations.

"The Mary Rose Revealed Once More on the very Day of its Sinking, 471 years Ago," ArtDaily.org, 07/20/2016

After a six-month closure and a multi-million pound investment, the Mary Rose Trust today unveiled to the world the Mary Rose, Henry VIII's favourite warship, 471 years to the day after it was sunk.

The ceremony held at the ship's home, Portsmouth Historic Dockyard, included a spectacular kabuki drop, revealing the ship after having undergone 23 years of extensive treatment, including state-of-the-art innovations, which has changed the face of conservation.

Revealed for the first time ever was a carved wooden Tudor rose, which was discovered at the time of the second excavation in 2005 but only recently identified as the original emblem of the ship, and the first figurehead of its kind, as depicted in 16th-century drawings in the Anthony Scroll.

For the first time in 23 years visitors can breathe the same air as the Mary Rose. The Mary Rose Museum provides stunning panoramic views of the ship from all nine galleries through floor-to-ceiling glazing on the lower and main decks. On the upper deck visitors enter the Weston Ship Hall via an airlock and are separated from the ship only by a glass balcony.

A one-of-a-kind Tudor time capsule, the Mary Rose has been undergoing continuous conservation since she was raised in 1982. The hull was first sprayed with a mist of fresh chilled water and then with a water-soluble wax from 1994 to April 2013 when the Mary Rose entered a stage of controlled air-drying. The hull has now reached a stable state within this drying process.

"Sydney's Most Important Statues Fall into the Careful Hands of Anne Cummins," Sydney Morning Herald, 07/23/2016

Over the past 25 years, art conservator Anne Cummins has worked on most of Sydney's major public

Articles You May Have Missed, continued

artworks. She was a rather unenthusiastic engineering student when she switched courses to art conservation. As well as looking after public sculptures, fountains, commemorative plaques and the occasional cannon, much of her work is for private clients.

"It astounds me, some of the collections here," she says. "In backyards and lounge rooms all over Sydney there are striking sculptures by Antony Gormley, Anish Kapoor, Edgar Degas, Pablo Picasso, Henry Moore, and Barbara Hepworth. I've even worked on an outdoor Auguste Rodin sculpture in a paddock surrounded by sheep."

Her engineering background has been useful at times, such as dismantling *Crossed Blades*, Alexander Calder's imposing 1967 sculpture outside Australia Square on George Street, which had to be moved so new paving could be put down. With the help of a rigging company, the 17 tonne, 10 metre high work was broken down into three pieces and moved into storage by crane.

Wanting to do a full conservation treatment, she contacted the Calder Foundation which suggested completely dismantling the work to treat all the components individually to rust-proof them. Unfortunately, there wasn't enough money to do this, so Cummins had the sculpture repainted and dealt with the more accessible corrosion. This sort of compromise is common, she says, because of the cost of major treatments – for public art, often the budget isn't there.

“Look What Lindbergh Left Inside the Spirit of St. Louis,” Air and Space Magazine, August 2016

The Spirit of Saint Louis is sitting temporarily on the floor of the National Air and Space Museum for conservation.

John Norman, a career mechanic who has worked on Boeing airliners, U.S. Army Hueys and Black Hawks, DC-3s, and a B-17 Flying Fortress, is building a replica of the Spirit of Saint Louis, which he plans to make airworthy. He was using the once-in-a-lifetime opportunity at the museum to take precise measurements.

With a video boroscope he peeked into some of the crevices of the airplane where the conservators didn't

want to remove covers. "I was looking to see if I might find Lindbergh's missing logbook," says Norman. Instead he found a pair of pliers, covered in dust, resting on nearly 90 year-old fabric. Malcolm Collum, the Museum's chief conservator, opened the cockpit door, knelt down, braced himself so he wouldn't put any pressure on the fabric, and reached for the pliers, directly below and behind the instrument panel.

At first, the restorers thought the pliers were left behind during a previous restoration, but Collum recognized the painted handles as Ryan Aircraft factory paint and believes this pair of pliers is very likely one that Charles Lindbergh took with him on his famous 1927 flight from New York to Paris.

Collum and his team have now finished their conservation of the Spirit. With the Spirit back on display, Collum hopes the pliers will soon be viewable at the Museum as well, with other items Lindbergh took on his flight.

“X-Ray Fluorescence and Image Processing Unmask the Woman Degas Painted Over,” Art Daily.org, 08/05/2016

Researchers used super-X-ray vision to peer beneath the surface of a portrait by impressionist Edgar Degas and gaze upon the model whose likeness he painted over nearly 140 years ago.

The woman, whose image Degas turned upside down before using it as a base for a new painting, was probably Emma Dobigny -- a favourite model of 19th century French artists, the team announced. "This has been a very exciting discovery," said David Thorrowgood, conservator at the National Gallery of Victoria, Australia, where the painting hangs.

A vague, ghostly figure has been slowly emerging, spreading an increasingly dark stain over the face of the model that replaced her. But previous attempts to glean something about the jilted original yielded little more than a faint outline.

Enter the Australian Synchrotron in Victoria, a particle accelerator which generates radiation for high-resolution imaging in research, therapy, or forensic analysis. The light it produces "is a million times brighter than the Sun, many orders of magnitude greater in power and

intensity compared to standard, hospital-like X-rays," synchrotron scientist and study co-author Daryl Howard told AFP.

"Because of the brilliant light, we are able to reveal unprecedented structural detail of any material". The researchers used the synchrotron to create eleven "maps" of the original canvas -- each of a different metallic element in the pigments Degas used, including arsenic, copper, zinc, cobalt, and mercury. The process took about 33 hours. Put together, the elemental maps provide a detailed reconstitution, revealing even the artist's brush strokes. The colours, however, have to be inferred.

“Art Conservators Estimate What it will take to Restore Historic Union Terminal Artwork,” WCPO, 08/08/2016

Art conservators came to Cincinnati earlier this month to examine 22 panels of paintings by French-born artist Pierre Bourdelle that for decades hung in Union Terminal's main dining room.

The paintings, which were adhered to plaster, were removed in 1990 and placed in storage when the Museum Center took over the building. The concern was the art would be damaged during repairs to the ceiling in what is now called the Gateway Café, said Scott Gampfer, director of the Museum Center's History Collections and Library.

The original plan was to raise money to restore the paintings and get them back in their rightful spots, but that never happened, Gampfer said. But the painting plan resurfaced after Hamilton County voters approved a quarter-cent sales tax increase in 2014 to fund the Museum Center's restoration.

"When we started talking about the restoration of Union Terminal, we talked about putting the artwork back," he said. "No one except a few staff members has seen them since 1990." Gampfer described the artwork as "stylized and whimsical views of animals and food," and images of them were captured in early black and white photos.

But now the paintings are little more than shadowy shapes under decades of soot, nicotine stains and grime. It's up to the art conservators to determine what it will take to clean the artwork and bring it back to its original condition.