western association
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for art conservation
Newsletter

September 2017 Volume 39 Number 3

President's Letter

Randy Silverman

The WAAC meeting was a memorable success – a collegial and intellectual treat. The quality of the 26 papers was superb and represents a testament to the membership's ongoing commitment to raising professional standards of practice and to freely sharing new ideas.

Missed the meeting? You are in luck. For the first time in WAAC history the presentations held in Salt Lake City were filmed and will be preserved on the University of Utah Marriott Library's server.

I encourage you to watch streaming video of each talk at:

epubs.utah.edu/index.php/waac

Please share this information with colleagues as one more reason to belong to WAAC. While a video misses the wonderful human interactions that occur at traditional 'off-line' meetings, this documentation confirms our meeting's high-quality content and will archive the talks for future reference. (The aabstracts will appear in the next issue.)

The following speakers, caught on film, were:

M. Susan Barger. Changes in Small Museum Professional Development and Outreach in the Internet Age.

Lorraine Bigrigg. Revisiting the Treatment of a Pair of Malby Globes at the Marriott Library, University of Utah.

Tish Brewer. Extensive Conservation Treatment of a Very Oversized Advertising Poster.

Tania Collas and Chris Stavroudis. Developing a New System to Remove Matrix and Clean Fossils from the La Brea Tar Pits.

Kimberleigh Collins-Peynau. The Conservation-Restoration of Two Human Hair Wigs.

Gretchen G. Dietrich. Reinventing the Utah Museum of Fine Arts: Celebrating Collections and Rethinking Engagement.

Debra Evans and Anisha Gupta Old School Meets New School: Fundamentals of a Successful Training Partnership.

Rachel Freeman. Cut from the Same Cloth: Comparing and Contrasting Two Pastels by Edouard Manet.

Sarah B. George. Designing the Natural History Museum of Utah in an Active Seismic Zone.

Anisha Gupta and Victoria Binder. Psychedelic Solutions: Unconventional Exhibition Displays for Rock Posters and 2D Materials from The Summer of Love.

Randell Heath. Live Demonstration of Dry Ice Misting as a Strategy for Soot Removal.

William Hoffman. Coming in from the Cold: Considerations for Equipment Selection, Operation, and the Development of Cleaning Parameters for Dry-Ice Blasting the USS Monitor.

Seth Irwin. Looking Good at 150: The Treatment of the Alaska Treaty of Cession Documents for the Alaska Sesquicentennial.

Justin P. Johnson. The Growth and Future of Conservation at the University of Washington Libraries.

Stacey M. Kelly, Jodie Utter, Amy V. Walker PhD, Ashley A. Ellsworth PhD, and Jenny K. Hedlund. Characterization of the Aniline Dyes in the Colored Papers of José Posada's Prints Using Time-of-Flight Secondary Ion Mass Spectrometry to Aid in Developing a Treatment Protocol for the Removal of Pressure-sensitive Tapes.

Kirk Lively. New Approaches to Temporarily Sealing Buildings Following a Structural Disaster.

Bill Minter. Special Collections Exhibits and Opportunities for a Book Conservator.

Colleen O'Shea. Kintsugi-repaired Ceramics in a New England House Museum? Analysis and Western-styleSimulation.

Nancy Odegaard. Investigating Liquid CO2 to Clean Textiles and Basketry.

Nancy Odegaard. Woman-Ochre, A Stolen de Kooning Painting Comes Home.

Steven Prins. On the Closure of Tears Using 3M Command Adhesive Strips.

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Samantha Springer. Putting the Wiki Platform to Work: Sharing Material Testing Results.
Bill Thomas. When is the Big One Coming? Securing Museum Artifacts for Storage and Display in an Earthquake Zone.
Jia-sun Tsang. Case Study: The Structural Conservation of a Painting Affected by Metal Soaps Formation.
Karen Zukor. The Challenge of Paper Engineering: Conserving 'The Map that Changed the World', William Smith's 1815 Geological Strata of Great Britain.

The meeting's realization was a result of many people's involvement. In addition to the best of speakers, WAAC is indebted to the generosity of Kirk Lively of Belfor USA and Yadin Larochette of Tru Vue. Their support made possible the succulent comestibles and reception in the picturesque Natural History Museum of Utah.

Our thanks also go to out-going members at large Seth Irwin and Christina O'Connell, and current MALs Jennifer McGlinchey Sexton and Samantha Springer, who helped solicit papers, moderate sessions, and lent their vision to board decisions. We welcome newly elected vice president Sue Ann Chui and incoming MALs Rowan Geiger and Trish Brewer. Sue Ann will be doing double duty, as Mark MacKenzie, the incumbent vice president, had to step down for personal reasons prior to the meeting. *Newsletter* editor Carolyn Tallent organized the lively and profitable Silent Auction, and treasurer Chris Stavroudis handled all registrations and accounting and reports that the Salt Lake City meeting came out "in the black."

Well done WAAC! My sincere thanks to everyone who helped make this meeting a success and my presidency so rewarding.

With warmest regards,
Randy Silverman

Regional News

Mark MacKenzie column editor

Alaska

Ellen Carrlee is currently working on artifacts for the 100th anniversary of the sinking of the *SS Princess Sophia*, the worst maritime loss of life in Alaska or British Columbia, as all 343 on board perished. She recently completed maintenance of the Governor's totem pole as well as condition reporting and inventory of 50 large industrial items in the Alaska State Museum transportation collection on loan to museums in the Anchorage area.

Scott Carrlee is working on StoryCorps interviews for communities assisted by Alaska State Museum outreach as part of the 2017 IMLS National Medal for Museum and Library Service.

Nicole Peters just got back from Juneau where she spent a week conserving the Wooshketaan totem pole carved by Nathan Jackson in 1980. Nicole was recently in Sitka completing a condition assessment for four 19th-century carved and painted cedar house posts on display at Sitka National Historical Park and has been consulting for Klondike Gold Rush NHP in Skagway, AK with their excavation of an archaeological atlatl discovered along the Chilkoot Trail. Her upcoming projects

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WAAC Newsletter

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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 15, 2018.**

Western Association for Art Conservation

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

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

Regional News, continued

include returning to the Anchorage Museum to further assist with the expansion projects and gallery renovations, providing conservation treatment for a fur and hide parka belonging to photographer Michio Hoshino, and assisting Klondike Gold Rush NHP in their efforts to relocate the Martin Itjen Streetcar for conservation treatment.

Lisa Imamura is finishing up projects at the Alaska State Museum before going to Philadelphia for a one year fellowship in preventive conservation at the Conservation Center for Art and Historic Artifacts. She most recently assisted with a treatment for the upcoming exhibit on the sinking of the *SS Princess Sophia*.

Regional Reporter
Ellen Carrlee

Arizona

Marilen Pool resumed working with the archaeological perishable collections this summer at the ASM. She will be resuming her PhD studies in Arid Land Resource Sciences at the U of A this fall. She recently completed a conservation survey for the Himdag Ki Museum for the Tohono O'oodham and has been working on a collection of Latin American folk art for an upcoming exhibit at the Tucson Museum of Art. She is also continuing her research on indigenous insect and plant based adhesives.

Arizona State Museum lab members with the help of other interns and volunteers completed another pottery blitz for over 100 pottery vessels; continued work on the archaeological basketry collection; examined and packaged collections for a large repatriation project; and began conservation work for a new archaeology exhibition.

Nancy Odegaard taught a materials conservation class in the UA summer pre-session, co-authored six papers for peer reviewed journals, worked on the School of Advanced Research (SAR) sponsored Collaboration Guidelines for Museums and Communities. She also conducted the preliminary conservation authentication of the stolen de Kooning painting, *Woman Ocher,* that was returned to the UA Museum of Art after 32 years. **Wendy Lindsey** assisted Nancy with the de Kooning project.

Gina Watkinson completed an intensive UA dendrochronology class with field work. **Betsy Burr** began a research project on treatments for charred materials with an FAIC Take-A-Chance grant. **Leah Bright** finished her 3rd year internship and is off to the National Museum of American Indian. **Skyler Jenkins** was field conservator for the Villa Romana di Poggio Gramingnano site in Italy and leaves soon for the UCLA graduate program. **Susie Moreno** worked in the ASM lab in July, and she and Betsy Burr participated in the UPenn Tumacacori stabilization project with **Frank Matero** and **Alex Lim** in August.

The conservators and technicians at the Western Archeological and Conservation Center labs have wrapped up the conservation treatment of a 10.5 x17 foot wooden map for Yellowstone. The piece was reinstalled in the Mammoth Hotel in August, much to the delight of many.

Dana Senge continued work with the Flagstaff area monuments and the Museum of Northern Arizona, focusing on a strategy and the implementation for methodical testing of a small percentage of their mammal and bird skin collections that could provide meaningful information to the whole.

Maggie Hill Kipling and **Audrey Harrison** continued to treat ethnographic objects for Grand Teton National Park. This treatment project, to treat over 1300 objects, has been ongoing since 2005 providing an opportunity for development of ideas and treatment techniques. This upcoming year is the last year of the project, and while the last 100 objects are undergoing treatment, Audrey is also reviewing each piece again, sharing how the treatments have faired so treatment strategies and materials may be improved.

Gregory Thomas, dba Art Care, having limited his private practice to painting conservation consultation, will no longer be providing treatments. A 5 x 8 foot vacuum hot table is available for purchase as well as several other pieces of studio equipment and related materials. Call (808) 397-0900 or e-mail artcare@mac.com if interested.

Regional Reporter
Dana Senge

Hawaii

Shangri La welcomes **Leslee Michelsen**, new curator of collections and exhibitions, who brings a host of conservation tasks in support of new installations and loans. September also marks the annual month-long closure for maintenance as well as some major construction work.

In July conservator **Kent Severson** travelled to the Iraqi Institute for Conservation of Antiquities and Heritage (IICAH) in Erbil to help train a team in safely lifting stone sculpture fragments as part of recovery efforts at the ancient site of Nimrud, largely destroyed by ISIS.

Paintings with unusual pasts that show up in the middle of the Pacific Ocean have been recent projects for **Dawne Steele Pullman** - a badly torn portrait by a Polish architect/artist bought in Austria immediately after WWII and a small 18th-C. *Last Supper* by an unknown artist saved during the Mexican Revolution, folded (!) and pocketed before ending up in the US.

Rie and **Larry Pace** worked on five paintings that will be part of the soon to open show at the Honolulu Museum of Art, *Abstract Expressionism: Looking East from the Far West*. Two early 19th century paintings from the Shangri La collection and several paintings from historic sites on Maui, Kauai, and Big Island are in the studio for treatment.

A badly drywood termite eaten 19th-c. polychromed Balinese wadah kadutan (kris/keris holder) has been occupying **Thor Minnick**'s time over the past month. The piece is extremely rare with only a few other known examples. He also extensively treated a Chippendale style water gilt mirror (mercury/tin), a mid 18th-c. English mahogany sideboard, and a pair of Verre de Nevers figurines.

Regional Reporter
D. Thor Minnick

Los Angeles

Joe Fronek is completing the restoration of LACMA's recent acquisition, an early 18th-c. work by Nicolás Correa, *The Imposition of the Chasuble on Saint Ildephonsus*. This rare example of enconchado (oil on canvas on wood, inlaid with shell), will be included in the exhibition *Painted in Mexico, 1700-1790*.

Elma O'Donoghue is finishing treatment on another recent acquisition, John Frederick Peto's *Daniel Webster (The Great Orator— Daniel Webster)* from 1904. The painting is in original state, unlined and on its original stretcher. The treatment included local reinforcement of weak tacking edges and flattening of distortions.

Kamila Korbela is treating Frank Stella's 1966 painting, *Bampur*. The painting is being surface cleaned and tests are underway to reduce spotty stains caused by old mold. Kamila consulted with **Charlotte Eng** and outside experts including **Jay Kreuger**, who came to LACMA to examine the painting. **Miranda Dunn** is completing her treatment of LACMA's 15th-c. Spanish panel by a follower of Andrès Marzal de Sas, *Saint Michael Fighting the Dragon*.

LACMA textile conservation has a new Mellon fellow, **Bermet Nishanova** (NYU '17), who started in September. **Amanda Burr** has joined LACMA's staff as the Mellon fellow in paper. She graduated with a Masters degree in art conservation from Suny Buffalo State specializing in library and archives materials. LACMA will give Amanda a chance to delve into a wide range of materials from the encyclopedic collections. She will have the opportunity to experience a wide range of exhibition and treatment projects from the Robert Gore Rifkind Collection of German Expressionist graphics and books to an upcoming exhibition on 3-D photography.

Mark Gilberg is now project director overseeing the implementation of **Frank Pruesser**'s plan for the long term preservation of the iconic landmark Watts Towers. **Janice Mae Schopfer** is now Interim Director of Conservation at LACMA.

Soko Furuhata recently attended "Twentieth-Century Color Photographs: Contemporary Practice, Identification, and Preservation," held August 7-11, 2017 at the Getty Villa. Principal Instructors were **Sylvie Pénichon**, Senior Conservator, Department of Photography, The Art Institute of Chicago; **Tram Vo**, Project Specialist, Getty Conservation Institute, Los Angeles, and **Janka Krizanova**, Head of Conservation and Restoration Department, Academy of Fine Arts & Design, Bratislava, Slovakia.

Tania Collas and **Marina Gibbons** are gearing up for the installation of the temporary exhibition *Tattoo*, which

opened at the Natural History Museum on November 19, 2017 in its only west coast appearance. Marina is currently treating archaeological and ethnographic artifacts from NHM's collections that will be featured in the exhibition as well. In addition, NHM will be displaying objects and art loaned from Los Angeles tattoo artists and collectors, including from the longest continuously operating tattoo shop in the United States.

Regional Reporter
Virginia Rasmussen

New Mexico

This summer three NMSU museum conservation program students went to three different museums to do internships. **Elena Mars** went to New York City to work under the direction of **John Saunders** for the restoration of the New York City's Monuments Project. The monuments restored were the following: Mozart; Thomas Moore; Von Webber; Washington Irving; Ludwig Van Beethoven; Edvard Grieg, Alfred Lincoln Seligman, Harriet Tubman, Carl Schurz, Woman's Health Protective Association, Lafayette and Washington, Brooklyn War, William Jay Gaynor, Abraham Lincoln, George Washington, Marquis de Lafayette, Independence Flagstaff, Slocum Disaster, Temperance Fountain, Samuel Sullivan Cox, Dvorak, Stuyvesant, Giuseppe Garibaldi, and the Washington Square Arch.

Museum conservation student **Brittany Wallace** went to Elvas (Minas Gerais), Brazil to work under the supervision of conservator **Carlos Magno de Araujo** in his conservation studio where she restored a 15th- to 16th-c. French paper-mache life size image of Christ. Magno is a well-known Brazilian conservator especially in the area of São João del Rei.

The third student **Hailey Jung** went to the Anchorage Museum in Alaska where she worked with the Native American collections as part of her research for her museum studies thesis.

Museums of New Mexico conservators, **Maureen Russell**, **Larry Humetewa**, and graduate intern **Sophie Hunter** recently completed treatments on over a hundred hand-carved wood artifacts for the Museum of International Folk Art exhibition, *No Idle Hands, The Myths and Meanings of Tramp Art*.

Along with textile conservator **Angela Duckwall**, they also treated dozens of elaborately beaded hide artifacts for the Museum of Indian Arts and Culture including moccasins, dolls, dresses, leggings, vests, and shirts. The exhibition is titled *Stepping Out: 10,000 Years of Walking the West*. They are also happy to announce that graduate third-year intern from the Buffalo conservation program, **Sophie Hunter** won a Kress grant and will be remain for at least another year.

Regional Reporter
Silvia Marinas-Feliner, M.A.

Pacific Northwest

The Seattle Art Museum conservation staff has been focusing on activities in preparation for the imminent renovation of Seattle Asian Art Museum. **Marta Pinto Llorca** and the SAM conservation team partnered with Southwest Solutions to install extensive temporary high density storage facilities in-house to accommodate displaced storage during construction.

They were also delighted to receive a significant IMLS Museums for America grant which will support the final phase of storage upgrades at SAAM. In preparation for the move, SAM's conservators and collections care staff needed to box, evaluate, and prepare over 10,000 works of art. They could not have done all of this alone and are grateful to interns and contract colleagues including **Dorothy Cheng**, **Peter Malarkey**, **Jennifer Myers,** and **Lena Takamori** for their hard work.

SAM is especially delighted to announce that, thanks to a generous grant from the Andrew W. Mellon Foundation, Seattle Art Museum will establish a new studio dedicated to the comprehensive conservation and study of Asian paintings when the Seattle Asian Art Museum re-opens following construction in 2019. This grant follows a Mellon-funded planning process and the studio will be open for the study and conservation of works throughout the western U.S.

SAM will also partner with **Tami Lasseter Clare** and the new Mellon Foundation-supported science initiative at Portland State University to examine and document paintings passing through the studio. At SAM Downtown, **Elizabeth Brown** worked with a Hirshhorn team and **Julie Creahan** to prepare for *Yayoi Kusama: Infinity Mirrors* and to manage a team taking care of the sculptures and mirror rooms throughout the duration of the exhibition.

Nicholas Dorman and **Geneva Griswold** traveled to Italy to arrange a conservation project for the cleaning of Massimiliano Soldani Benzi's *Lamentation over the Dead Christ* in partnership with conservator **Ludovica Nicolai** and the Museo Nazionale del Bargello. Geneva will work with Ms. Nicolai in the Bargello galleries for part of the project. They are very grateful to the Samuel H. Kress Foundation and other private and foundation supporters for making this project possible.

SAM bid goodbye and congratulations to **Jennifer Myers** as she completed her SAM internship and began her studies at Winterthur/University of Delaware conservation program this fall. They welcomed **Lena Takamori** as the new intern in July.

Jamie Hascall has been busy building mounts for multiple private collections as well as building and repairing mounts for a traveling exhibition of Aboriginal Australian paintings on bark and hollowed logs. He is presently preparing the training curriculum for upcoming workshops at Mountmaking Focus Studio on the fundamentals of mountmaking, use of acrylics and other

plastics for mountmaking, and basics of seismic stabilization. Open workshops are currently offered for November and December and future dates are being planned.

Samantha Springer has been working on public outreach projects with her colleagues in education and marketing at the Portland Art Museum (PAM). Her first post on the treatment of Lichtenstein's *Brushstrokes* launches a new series called SAM@PAM. The name stands for Science and Art Meet at the Portland Art Museum and is intended to inform the public about conservation work at PAM. Samantha now has a small, but dedicated, work space in the museum proper where she recently worked on the desalination of an Islamic tile with preprogram intern **Sydney Schaffer**.

She is also happy to share that space with third-year intern, **Mari Hagemeyer**, from the UCLA/Getty program for four months this fall. Mari is busy developing a methodology for collaborating with local native basket weavers, re-backing an Islamic tile mosaic, and helping Samantha catch up on a backlog of various smaller scale treatment projects. This has included modifying the mount for a suit of Samurai armor to go on view in conjunction with the LAIKA exhibition featuring puppets from the movie Kubo.

Samantha has enjoyed collaborating with other local conservators on projects including the treatment of a Gabriel Revel painting with **Nina Olsson** that necessitated a trip to the local hospital (OHSU) for x-radiography and mammography. Cleaning revealed a statuette in the background that appears to have been covered up by a previous restoration. The curator, **Dawson Carr,** has made the bold decision to leave the statuette visible, hoping to inspire more research into the artist and painting.

Finally, Samantha enjoyed seeing many of her colleagues in the Northwest in November when the museum will host a second informal conservation gathering for colleagues to mingle and share about their current work.

Corine Landrieu was busy this summer working on *Reach*, by Lorna Jordan, a large yellow cedar bridge sculpture located at Edmonds Community College. She also worked on a 19th-c. French statue *Our Lady of Seattle* for St James Cathedral, on a 1953 Carl Perkins electric guitar for MoPOP, and on a series of privately owned objects including a bell tapestry by Vibha Galhortra and August Rodin's *L'Age d'Airain* and *Eve*. After a few more outdoor sculpture maintenance projects in the late summer/early fall, she is getting ready to start work on a 1944 Mark V. diving suit for the Naval Undersea Museum.

Regional reporter:
Corine Landrieu

Rocky Mountains

The conservation lab at the Buffalo Bill Center of the West was full of great interns this summer! **Daniel Kaping**, third year Buffalo student was busy treating 9 outdoor bronzes, firearms, Plains Indian objects, AND he converted a camera to IR. **Leah Humenuck**, incoming West Dean student, worked on Buffalo Bill's daughter's photo album vanity, maps of the Buffalo Bill Wild West show, a Plains Indian bonnet, and many more works on paper.

Alaggio Laurino, pre-program student, worked on ceramics, Plains Indian objects, firearms, outdoor bronzes, and the tongue of a Thom Ross Annie Oakley sculpture. **Dee Rudolph**, ceramicist at Brigham Young University, Idaho conserved many ceramics and served as lab manager.

Highschool students, **Clair Pfister**, **Effie Clark**, and **Dorothy Shippen** provided support for many projects. **Kylie Twiest**, masters student at Slippery Rock University visited the lab and met with the interns. Second year Buffalo student **Kaitlyn Wright** helped with the maintenance of *The Scout* sculpture of Buffalo Bill. The lab also thanks **J.J. Chen**, **Carmen Bria**, and **Kristin Cheronis** for their guidance this summer.

As part of "Vision 2021" the north building on the Denver Art Museum campus will undergo a major revitalization beginning in late 2017. Originally opened in 1971, the building was designed by Gio Ponti – his only building in the US. Noted for its mid-century tower-like design, Vision 2021 will preserve the building's original elements and add a welcome center, event spaces, expansion of galleries, and a new conservation lab. It is an exciting time, with an interim consolidation of spaces and a collection move being at the forefront of activities.

Gina Laurin along with mountmakers **Steve Osborne** and **Nick Donaldson** have been key point persons in the de-installation of large, complex objects from the Asian, Northwest Coast American Indian, and New World galleries. The entire conservation staff has been involved with advising and packing.

The staff has also been busy completing treatments for upcoming exhibitions including *Stampede: Animals in Art*, and *Ganesha: The Playful Protector. Stampede* which will open in two parts, is largely drawn from the museum's collection and focuses on themes and portrayals of animals in art. Every medium and culture is represented – from paintings to photographs and works on paper; textiles to wood; electronic media to metalwork and ceramic.

Since May, **Kate Moomaw** has been working on outdoor sculpture maintenance as well as the IMLS electronic media preservation grant with **Eddy Colloton**. Kate and **John Lukavic**, associate curator of native arts, published "Preserving a Trans-Customary Portal, Autoimmune Response: Weaving the Sacred Mountains" in the *VoCA Journal*. The piece focused on the conservation challenges of an electronic media artwork incorporating QR Codes by the Navajo artist Will R. Wilson.

Kate was also interviewed about the preservation of food elements in the installation *Fox Games* by **Sandy**

Skoglund (1989) for the article "How Do You Conserve Art Made of Bologna, or Bubble Gum, or Soap?" by Jacoba Urist, *The Atlantic*, June 9, 2017.

Sarah Melching is pleased to join the AIC Board as specialty group liaison. The DAM conservation staff is delighted that **Nicole Feldman** has begun her formal conservation training at NYU. **Samantha Hunt** has succeeded Nicole as a conservation assistant.

Conservation Solutions' current projects include the assessment and treatment of various sculptures, lanterns, corbels and cornices, an historic pool, wooden doors and bronze grills and terracotta architectural elements at an iconic museum in South Florida; exterior laser cleaning of several iconic buildings in Washington DC; assessment and treatment of several space and aeronautical artifacts at locations along the East Coast; ongoing assessment, planning, and treatment of 1,500 historically significant maritime artifacts. New projects include the treatment of two Weinman sculptures from a museum in New York City; and the assessment and treatment of a historic bronze statue of George Washington in Virginia.

CSI was pleased to sponsor and exhibit at the 2017 APT-CAHP- Northern Trust Joint Conference in Ottawa, Ontario. CSI is continuing its expansion in the US and Canada and is actively recruiting conservation team members. Qualified conservators should email their CV and cover letter to careers@conservationsolutionsinc.com.

Nancy Fonicello recently completed the conservation treatment of a bison hide tipi in the permanent collection of the Montana Historical Society of Helena, Montana. The tipi, fabricated from eight full sized bison hides, is estimated to date back to the mid-1800s and is one of only a handful of historic Northern Plains hide tipis still in existence. Nancy is currently working under contract on the conservation of Native American ethnographic objects for the National Museum of the United States Army and for the US Army Museum collections at Fort Sill, Oklahoma.

At the Denver Museum of Nature and Science **Julie Parker** is wrapping up her work on the IMLS Plains Nations clothing and accessories grant, while **Jessica Fletcher** continues conservation work on the IMLS American ethnology collection treatment grant.

Avenir Conservation Center Manager **Jude Southward** has a busy exhibition schedule including the recently opened *Nature's Amazing Machines*, and upcoming exhibits *Alegbrijes* and *Ultimate Dinos*, where she was also assisted by Jessica and Julie. They are grateful to their wonderful conservation volunteers this summer including **Jill Mally**, **Lyndy Bush**, **Kathryn Ruesch**, **Pat Jerrell**, **Becky Hiett**, and **Meredith Sweeney** (a conservator from the undergraduate conservation program at Cardiff University in Wales).

Hays Shoop and **Yasuko Ogino** adventured north of the Arctic Circle to Utquagvik (aka Barrow) Alaska in mid May to treat six easel paintings in the collection of the Inupiat Heritage Center. The project, which has been in the works for years, became complicated when IHC finally found that it would not be economically feasible to ship the paintings to the Denver studio. The conservators, armed with the equipment they could reasonably ship by air (there are no roads) and what they could buy at the hardware store in Barrow were able to carry out the treatments on site, including the consolidation, infusion, and lining of a large scale canvas.

Regional Reporter:
Julie Parker

San Francisco

As of Sept 1st **Anne Getts** will be transitioning from an Andrew Mellon 3-year assistant textile conservator to a permanent position as associate textile conservator. This position has been funded by a private donor who has the department's deepest appreciation and thanks. After years of being a one-person lab, supported by dedicated volunteers and private-lab supported conservators, the de Young's textile lab can now look forward to more skillfully meeting the exhibition and permanent collection needs of the 21st century.

The Bay Area Art Conservation Guild, in association with the Computer History Museum presented: "The Ghost In the Machine; Thoughts on Preserving Electronic Systems" on May 13th. The featured speakers were **John Burke** and **Nora Eibisch**. The event included a talk, tour, and time to enjoy refreshments supplied by the BAACG board.

Margaret (Meg) Geiss-Mooney, costume/textile conservator and collections care/management consultant, taught the textile/costume/fiber salvage portion of the FAIC Miami Heritage Responders webinar training series in August. She has been a member of the National Heritage Responders (formerly AIC-CERT) since 2011. Meg was also appointed to another term of the city of Petaluma Public Art Committee in June 2016.

The conservation center at the Asian Art Museum just completed a series of analyses funded by an education grant from the Andrew Mellon foundation. Over 70 objects were included, and over 100 analyses carried out. **Catherine Coueignoux** applied her recently acquired skills in lacquer analysis (from the Getty's latest Recent Advances in Characterizing Asian Lacquers (RAdiCAL) workshop) to assist in this endeavor.

The conservation center has been awarded a grant from the Overseas Korean Cultural Heritage Foundation (OKCHF) for the re-mounting of two Korean Buddhist panel paintings into their original screen format.

Kimi Taira continues being active in the AIC Emerging Conservation Professionals Network (ECPN) acting as liaison with the Equity and Inclusion working group.

Regional News, continued

Denise Migdail received a travel scholarship from AXA Art Asia to attend the IIC-Palace Museum Hong Kong Textile Symposium in November of this year.

The Asian Art Museum is gearing up for an expansion of the special exhibition galleries. The new gallery will expand exhibition space by more than 80,000 square feet and allow for display of some of the recent acquisitions in contemporary art. The expansion also will create an art terrace for events and outdoor sculpture. This is an exciting adventure, but challenging to add space to a building that has historic significance and is limited in the amount and nature of changes that can be carried out.

On the heels of the tribute to the 50th anniversary of the Summer of Love, *Flower Power*, and a ground breaking exhibit of Philippine art in the Tateuchi Gallery (the latter will be on view through March 11, 2018), the department is preparing for its next exhibition, *Couture Korea*, which runs from November 3, 2017 through February 4, 2018. This foray into fashion will allow the exploration of historic as well as contemporary Korean fashion and designers working today. Local textile conservator, **Beth Szuhay**, will join the exhibit team as a contract conservator to help assist with this exhibit.

Regional Reporter
Alisa Eagleston

Texas

In the wake of Hurricane Harvey, which recently devastated communities along the Texas Gulf Coast and beyond, TX-CERA, the Texas Cultural Emergency Response Alliance has been distributing information and news with regard to the safety and salvage of cultural collections to institutions and individuals across the affected area.

TX-CERA is an affiliation of institutions and persons interested in preserving the cultural heritage of Texas and is a part of the FAIC Alliance for Response Network and the National Heritage Responders network of the AIC. As the flood waters recede and a fuller extent of the damage becomes known, the organization will distribute a roster of heritage and collections professionals in Texas, providing a clearinghouse of ready support to cultural institutions.

The paper conservation lab at the Harry Ransom Center hosted an intern over the spring and summer, **Manon Paya**, a fourth-year student from the Institut National du Patrimoine in Paris, France. Manon assisted staff conservators **Jane Boyd** and **Ken Grant** in the treatment of collection items for the Center's upcoming exhibition *Mexico Modern* which highlights the creative practice of artists and writers in Mexico in the first half of the 20th century.

In addition, Manon treated items as varied as illustrated manuscripts on optics by the 19th-century British astronomer Sir John Herschel, works by the American Yiddish author Isaac Bashevis Singer, and publicity posters from the Alfred Hitchcock thriller *North By Northwest*.

Regional Reporter:
Ken Grant

Membership

WAAC Welcomes the following new members and very late renewals:

Brent Baker, Lorraine Bigrigg, Emily Brzezinski, Darryl Butt, Kimberleigh Collins-Peynaud, Katharine Corneli, April Hann Lanford, Charlotte Eng, Brad Epley, Bianca Garcia, Stephen Gayler, Scott George, Anna Graff, Anisha Gupta, Lili Hall, William Hoffman, Betsy Johnson, Mike Jusko, Stacey Kelly, Francis , William Minter, Laura E. Pate, Kate Powell, Steven Prins, Rijksdienst voor het Cultureel Erfgoed, Corey Riley, Ms Julia Sharp, Scott Simkins, Brian Simmons, Annette Steele, Lena Takamori, and Morgan Wylder.

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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Capturing Dust: Microscopic Examination of Vellux® Fabric Used in Modern and Contemporary Paintings Conservation

by Jia-sun Tsang and Stephanie Barnes

Surface cleaning is typically the first, and sometimes only, course of action for the conservation of modern and contemporary artworks. In our work at the Museum Conservation Institute (MCI), we have found that Vellux fabric effectively removes dust and other deposits from painting surfaces without the problems and risks posed by liquid cleaning agents. This article will describe our use of Vellux fabric in combination with a HEPA vacuum for dry cleaning the surface of paintings.

We used this method to collect dust samples from paintings in two major exhibits. We then examined the samples to track patterns of dust deposition and to study the chemical and physical structure, and absorptive and abrasive properties of Vellux fabric. We hope this information will help other conservators develop cleaning techniques using Vellux fabric, tailored to their specific projects.

Introduction

Dust and airborne particulates are a persistent concern for museum professionals (1-4). Dust can make a paintings collection seem inadequately maintained, obscure the artist's intent and elements of the design, and contribute to chemical degradation of the paint media and support. Furthermore, dust can trap water vapor, contributing to staining, corrosion, mold, and mildew on paint surfaces.

Modern and contemporary paintings in particular often cannot be safely cleaned with water or other solvents. Cleaning solutions can drive the dirt deeper into uneven and unprimed supports, leach components from the paint film, and disrupt sensitive paint, mixed media, and collage elements. Conservators often use commercially available surface cleaning sponges and fabrics to remove dust and other deposits from the surface of artworks.

Yet despite their ubiquitous use in conservation, there is surprisingly little technical information on these cleaning materials (5-9). Conservation specialists have, of necessity, developed their own particular techniques and materials for dust removal to safeguard the objects under their care (8-10). For instance, removing dust from historic textiles presents different challenges than dusting an unvarnished painting with a soft, matte surface.

Dusting lightly with a soft, long-bristle brush works sufficiently well for a varnished painting, especially one that is heavily varnished. However, removing dust from complex modern and contemporary paintings is uniquely challenging due to the nature of modern synthetic paints, mixed media, and the artworks' often unconventional assembly and construction. New cleaning tools and techniques are needed to address the inherent complexities of these artworks and to protect the paint's physical and chemical integrity.

Dirt and Dust in Museum Exhibits

Dust is a reality of exhibit maintenance, and its proper removal is an integral part of the activities and training of building management, collection care staff, and preventive conservators. Highly attended exhibits naturally accumulate the most tracked-in dirt and dust from visitors' clothing and footwear, as well as dust and particulates dispersed from the building's HVAC system (10-11).

It requires a team of museum collection specialists and conservators to routinely remove dust and check the condition of vitrine and frames. An optimal indoor climate (temperature 70°F ± 4°F; relative humidity 45% ± 8%) in combination with a clean and well-maintained air-handling system can reduce, but not wholly eliminate, dust (12).

Conservators use many tools to dust artworks: hake brushes, microfiber dusting cloths, microfiber-covered dusters with extendable arms, microfiber cloths made for cleaning electronic devices, cosmetic sponges, Mr. Clean™ Magic Erasers, and lint-free cotton pads, among others (5-9, 13).

In the last two years, members of the MCI paintings conservation team have used Vellux fabric to dry clean the surfaces of paintings in two large exhibits of modern and contemporary paintings and painted artworks at Smithsonian Institution galleries. Conservators of modern and contemporary art often borrow tools and techniques from conservators in related disciplines, such as anthropology, archaeology, paper, objects, and textiles. Using Vellux fabric to remove dust from paintings was adapted from the conservation of historic textiles, archaeological objects, fragile beadwork and basketry (14), and 3-D art installations. We have found this method so successful that Vellux fabric has become a staple of our surface-cleaning toolkit.

Use of Vellux Fabric in Paintings Conservation

Vellux fabric is a hypoallergenic, nonwoven, synthetic product often used as blanket material. Patented in 1970 (15) and trademarked in 1972 (16), the fabric is commonly sold as WestPoint Home Vellux blankets. It consists of a double inner layer of closed-cell polyurethane foam secured around an inner network of 100% terylene polyester webbing, with outer surface layers of flocked 100% nylon fiber. The diagram illustrates the internal structure of Vellux fabric as seen by our microscopic examination, which is consistent with product patent information.

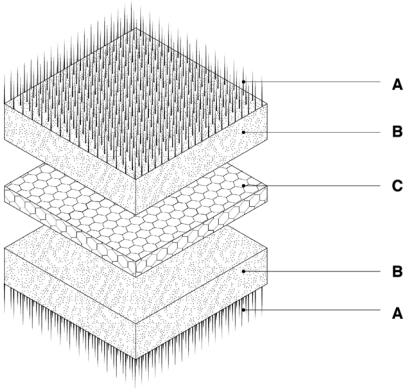

Fig. 1. Cross-section of Vellux fabric showing (A) flocked nylon fiber, (B) polyurethane foam, and (C) polyester membrane

This construction results in a material that will not stretch or shrink (< 1%), does not fray or easily shed fibers, and will not absorb moisture (15). Vellux fabric is about a quarter of an inch thick and has a distinctive airy, light, and soft feel. Care must be taken when purchasing products made of this fabric, as imitations sold online are of inferior quality or made from different materials.

For paintings conservation, we secure a layer of Vellux fabric over the nozzle of a vacuum cleaner with rubber bands or twine, providing a filter to trap dust and dirt as well as a soft barrier between the vacuum nozzle and the paint surface. A vacuum cleaner with a high-efficiency particulate air (HEPA) filter is recommended, as it releases less dust back into the air than a traditional vacuum cleaner. We also advise using a vacuum with adjustable suction, such as a Nilfisk vacuum with a rheostat, when working in close proximity to collections objects.

A layer of rigid plastic netting can be secured under the Vellux fabric so that the improvised filter will not collapse under vacuum pressure. A hake brush can be used to direct the dust toward the Vellux-covered vacuum nozzle. We have tested this device in our conservation practice, both in direct contact with the surface of artworks with robust paint films and with no direct surface contact. We also use Vellux fabric alone to dry-dust frames.

The main advantage of using a Vellux-covered vacuum nozzle over a dusting cloth or brush is that it collects loose dirt rather than redistributing it. Also, the Vellux fabric's tiny, soft nylon bristles do not catch or pull well-adhered paint, while its middle polyurethane layers trap soil. Vacuum cleaner micro-attachment kits are available with several small nozzles that are particularly useful for removing dirt embedded in small gaps in the paint.

A further advantage is that dirt trapped in the fabric filter can be examined microscopically to identify the source of the dust and to track patterns of deposition within the gallery space.

Microscopic Examination of Clean and Soiled Vellux Fabric

The following images show both the physical structure of Vellux fabric and the pattern of dust captured within the fabric's structure. We used our Canon G12 lab camera for macrophotographs, an in-house digital Hirox KH-8700 microscope to capture photomicrographs, and a Hitachi S-3700 N scanning electronic microscope for imaging and elemental analysis of soil samples.

The dust samples were collected from the exhibit *Kay WalkingStick: An American Artist* at NMAI (Nov. 7, 2015 to Septembe18, 2016) and the NMAAHC's Visual Art Gallery (Nov. 2016–present). These two highly attended exhibitions attracted visitors in multiple seasons in indoor environments set at the standard temperature (70°F ± 4°F) and relative humidity (45% ± 8%

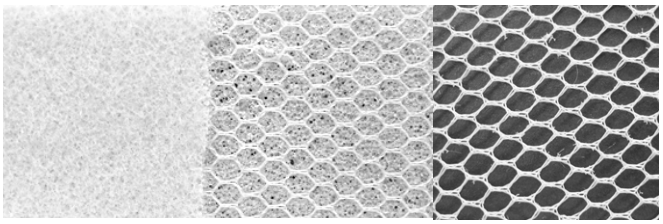

Fig. 2. Vellux fabric surface (left) with the top layer peeled back to expose the polyester webbing and inner polyurethane layer (center), and the middle layer of polyester webbing (right).

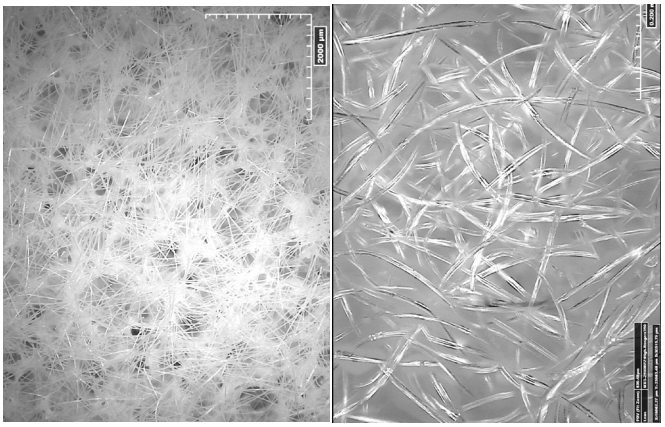

Fig. 3. Clean Vellux fabric showing surface layer of nylon bristles over polyurethane foam (left). Nylon bristles shown at high magnification (right). Individual fibers are approx. 0.02 mm in diameter.

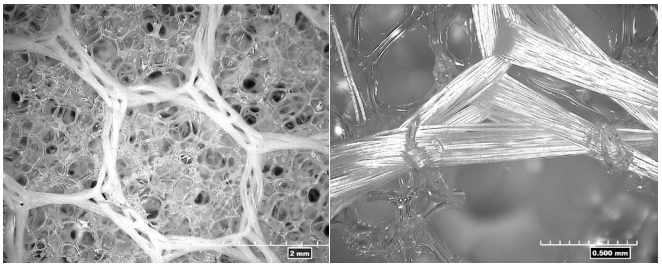

Fig. 4. Clean Vellux fabric showing exposed polyester webbing and layer of polyurethane foam visible below (left). High magnification of polyester webbing (right).

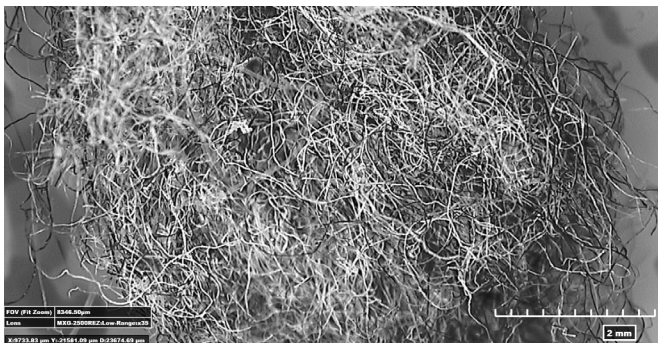

Fig. 5. Fibers collected on the surface of Vellux fabric. These fibers are too large and tangled to pass through the nylon and polyurethane layers of Vellux fabric.

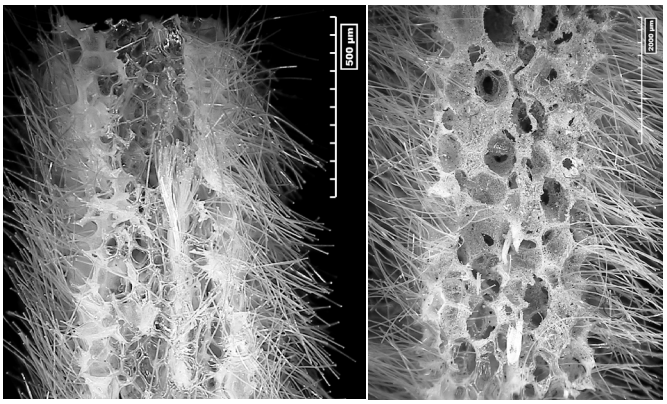

Fig. 6. Cross-section of clean (left) and soiled (right) Vellux fabric. Captured dirt is primarily visible in the layer of polyurethane foam.

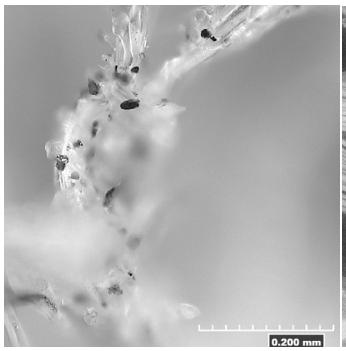

Fig. 7. Photomicrograph showing dirt captured in nylon bristles of Vellux fabric.

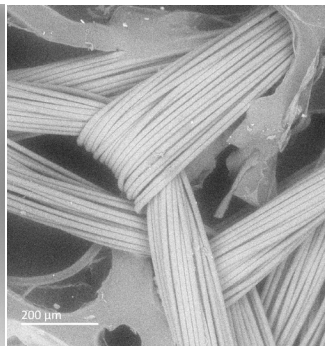

Fig. 8. Dirt particles captured in the polyester webbing of Vellux fabric. *Photomicrograph by Thomas Lam.*

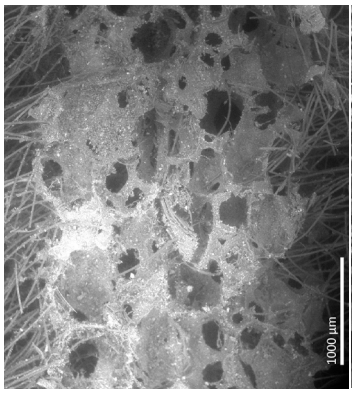

Fig. 9. Soil trapped in pores and channels of Vellux fabric's polyurethane membrane. *Photomicrograph by Thomas Lam.*

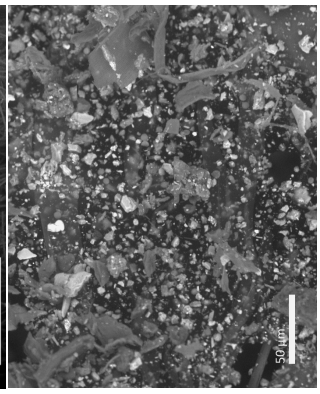

Fig. 10. Soil particles trapped in pores and channels of Vellux fabric's polyurethane membrane are predominantly Na, Mg, Al, Si, K, and Ca. *Photomicrograph by Thomas Lam.*

Discussion

The cross-section and close-up of the three layers of Vellux fabric, shown in the photomicrographs captured with a Hirox-KH-8700 microscope, are consistent with the diagram represented in the original patent, and FTIR analysis is consistent with the product's stated composition (13, 15).

The layers consist of an inner core of terylene webbing surrounded by polyurethane foam and finished with a surface of flocked nylon fibers approximately 0.02 mm in diameter. These tiny fibers act as microdusters when in contact with the surface of an artwork. The fibers are so soft they leave no visible abrasions or burnished marks on the paint surface. (Microscopic examination of the paint surface was not possible because paintings are still on display.)

Particulates are collected and stored in the double layer of polyurethane foam. Larger fibers from visitors' clothing and shoes cannot penetrate this membrane and collect on the surface of the Vellux.

SEM-EDX examination shows dust held in the polyurethane foam membrane that includes microscale particles of aluminum, silicon, and calcium.

We investigated several methods for using Vellux fabric in paintings conservation. A Vellux-covered vacuum nozzle can be used in direct contact with frames, strainers, and paint surfaces, provided the paint layer is stable and well-adhered. A vacuum with adjustable suction, such as a Nilfisk with a rheostat, provides an extra measure of control and should be used on its lowest setting. Vellux's surface layer of nylon fibers is soft enough to brush over paint surfaces without creating abrasions or burnished marks.

Alternatively, the Vellux-covered vacuum nozzle can be held slightly above the paint surface, and the rheostat can be adjusted to gently suction dirt without direct contact with the paint surface. A soft brush can be used to direct dirt toward the vacuum nozzle.

We found that both methods worked well for routine dirt removal in our galleries. Neither method is suitable, however, for use on very lean or powdery surfaces where original material can be disrupted, or for works with soft or sticky surface components.

Machine-washing and reusing Vellux is a matter of concern. Microscopic examination of used Vellux fabric indicates that dirt is not only trapped in the polyurethane membrane, but also adheres to the polyester webbing and nylon bristles.

The distribution of dirt in all three layers of Vellux fabric, and its tight adherence to fibers, suggests that machine-washing will not sufficiently remove deeply embedded dirt from Vellux fabric. Thus, at this time we cannot recommend that Vellux fabric dusters be washed and reused for conservation purposes.

However, since using a Vellux duster once and discarding it is neither frugal nor sustainable, we plan to repeat our examination of soiled Vellux fabric, using samples soiled with dust, insects, and mold, to see if there is a cleaning method or product that could render used Vellux dusters clean enough for repeated use.

Materials and Suppliers

HEPA filter vacuum cleaners are available from laboratory supply companies such as Lab Safety Supply, P.O. Box 1368, Janesville, WI 53547-1368, (800) 356-0783, and Nilfisk of America, 300 Technology Drive, Malvern, PA 19355, (213) 647-6420.

Vellux is available at amazon.com/Vellux-Original-King-Blanket-Ivory/dp/B002KFZ4JU (accessed August 9, 2017).

Instrumental Methods

Hirox Microscopy
Photomicrographs were captured with a Hirox KH-8700 digital microscope with a 2.11 megapixel CCD sensor camera and high-intensity 5700K LED light and an MX (G)-2500 REZ lens.

The microscope was used to capture high-magnification images of clean and soiled Vellux fabric, with variable depth of focus, and to take measurements. Cross-sections were mounted on double-sided tape and examined unembedded.

Scanning Electron Microscopy

Imaging was carried out using a Hitachi S-3700 N variable pressure scanning electron microscope, operated in variable pressure mode with a working distance of 10 mm and an accelerating voltage of 7–15 kEV for most samples.

Elemental analysis was executed using a Bruker XFlash 4010 energy dispersive spectrometer. Samples were uncoated and unembedded. SEM was used to capture high-magnification images of Vellux fabric's structure and embedded dirt.

FTIR Spectrometry

FTIR analyses were carried out using a Thermo Nicolet 6700 Fourier transform infrared spectrometer with Golden Gate diamond cell ATR. Spectra were referenced to the IRUG database of artists' materials and the HR Hummel Polymer and Additives library.

FTIR analyses confirmed that the chemical composition of our Vellux samples was consistent with published patent information.

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Finding Closure with 3M Command Adhesive Strips

by Steven Prins

The closure of tears is a procedure often required in the repair of damaged paintings on canvas. In the following pages a novel method of closure developed over the past five years in the conservation studio of Steven Prins & Company is described as a practical guide for its application by other conservators. The technique makes use of tractors (tensioners) and stators (stabilizers) made in the studio from readily available materials: 3M Command Clear Adhesive Strips and 2-mil (0.002") clear polyester film. While this article describes a protocol developed specifically for use in the repair of torn canvas, the materials and methodology can also be applied to repairs of other materials where temporary traction and/or stabilization are required.

Background

Many readers are no doubt familiar with 3M Command Adhesive Strips (CAS). They are widely used in a variety of applications and contexts where reversibility without adhesive residue or damage to either substrate or adherent is desirable. They are essentially double-sided, pressure sensitive tape tabs that reverse by elongation of the carrier.

The technology is based on a proprietary, fairly aggressive, pressure-sensitive "rubber" adhesive capable of forming strong bonds with high shear strength and low tensile strength when used with appropriate substrates and adherents. Elongation of the carrier results in tensile failure of the bond to both substrate and adherent. Consequently, the adhesive remains on and is removed with the carrier.

This technology greatly reduces, if not completely eliminates, the likelihood of damage to the substrate posed by peeling of other pressure sensitive adhesive tapes. It also proves to be far more convenient in day-to-day use than other adhesives that might be used for the temporary attachment of secondary materials to canvases and/or painted surfaces, the removal of which require heat or solvents, i.e. BEVA 371, or water, i.e. glue/paste. It also greatly reduces, if not alleviates any risk of adhesive residue left on/in the substrate after removal.

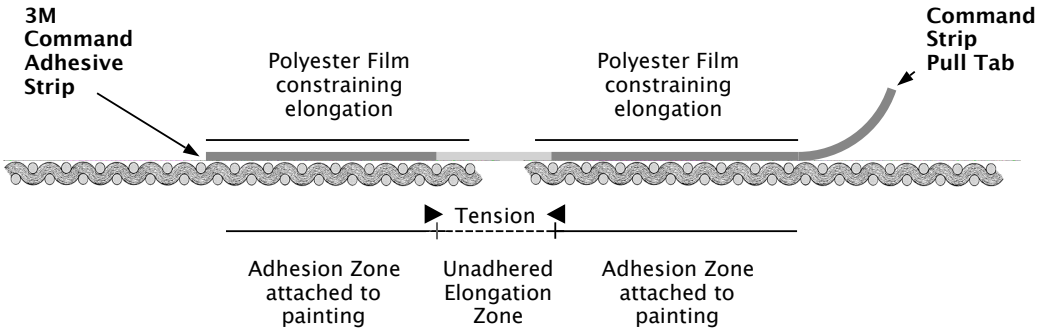
The use of CAS in tear repair is not entirely novel. Their German equivalent, Tesa Powerstips (white foam), were used by Winfried Heiber for the temporary attachment of tapes and tensioners in his pioneering work on tear repair in the late 20th and early 21stcentury for these very reasons. Through practical workshops led by Heiber himself during his lifetime (d. 2009) and perpetuated by his protégé Petra Demuth, and summarized and illustrated in *The Conservation of Easel Painting* (2012), his methodology has been widely disseminated in America, where 3M's CAS superseded the German Tesa brand.

It was in the course of experimenting with Heiber's materials and methods that the author came to wonder if, rather than simply acting as a reversible adhesive for the attachment of tensioners, the elastic properties of the CAS itself could be exploited as the source of traction across the tear? A simple test was carried out, and it turned out that a CAS stretched between two taborets in the studio retained sufficient elasticity to contract and actually move the two pieces of furniture together.

This empirical observation motivated experiments which led, after various refinements and adaptations, to the technique described here. However, the basic principle remains the same: a sufficient number of prepared strips are stretched across a tear to gradually pull the edges together.

This technology has become the default method for tear closure in the studio at Seven Prins & Company. Chief among its observed desirable characteristics are:

- Use is simple, straightforward, and expeditious.
- Low risk of damage to supporting fabric or painted surface when properly deployed.
- No adhesive residue, no use of solvents or heat.
- Exploits common, readily available materials.
- No additional mechanical devises are required and nothing else need be attached to the painting to effect necessary tension.
- All attachments are in close proximity to area of the damage
- Treatment is generally carried out with the canvas on its stretcher, making it easier to alternate working from the front or the reverse.
- The thinness of the CAS means the presence of tractors/stators on the obverse generally will not affect the ability to work with the canvas on a solid support, i.e. face down on a table or blocked up from the reverse.



Preparation of the CAS

The preparation of CAS tractors and stators is simple and straightforward. It entails the application of non-elastic backing to one side of a CAS. For general use in the studio we prepare them in bulk from medium-sized, clear CAS sheets.

1. Remove the release paper from one side of the CAS.

While one can work with a single strip, it's more practical to do full, or even multiple, sheets at one time.

The polyester film can be applied to either side of the strip. The adhesive area on the blue side is slightly smaller than the black. Attaching the polyester film to the blue side provides a larger adhesive area in contact with the substrate during application and use; applying it to the black side allows greater control during removal.

2. Attach polyester film to the adhesive side.

The non-elastic backing provides the important function of preventing elongation and release of the CAS while in use.

The backing can be any dimensionally stable sheet material, i.e. paper, Hollytex, etc. However, in practice 2-mil (0.002") clear polyester film is almost always used in the studio as it provides visibility of the substrate during application, progress of traction and union, and adhesive release during removal. 1"-wide strips, which work well for Medium-size CAS, can either be hand made or obtained in 500' spools from University Products.

For the stators, used to secure closures, a single continuous backing is applied to the entire adhesive area.

For the tractors, two parallel strips of film are applied across the strip / sheet(s), leaving a small break/gap between the two. This gap will allow for localized elongation and contraction, creating tension across the tear. For general use, the size of the gap between the polyester strips is generally small: less than 1/16". However, a larger gap is often desirable to span a larger tear without effecting too much tension.

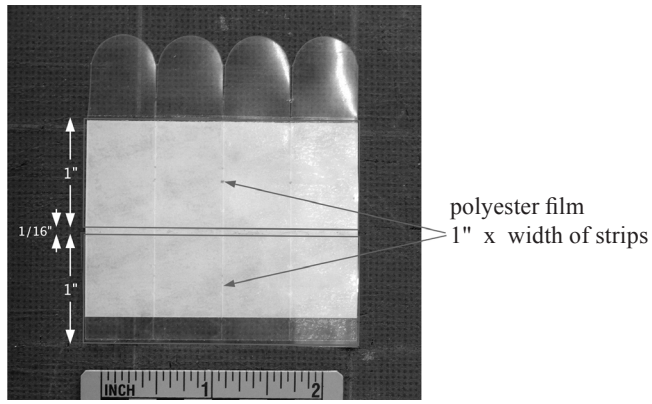
When applying the film start at the center, swipe outwards across the polyester with pressure sufficient to establish an initial bond between the film and the CAS sheet while allowing for extrusion of any entrapped air pockets. Any excess polyester film at the edges should be trimmed flush with the CAS.

In practice strips are seldom used in their full width, but cut into halves, thirds, and even quarters depending on the size and characteristics of a particular tear, the degree of traction required, and the specific topographical features encountered on a given substrate.

3. Securing the adhesion.

After initial attachment of the films, the strips should be placed under weight for at least 30 seconds, the time recommended by 3M to form a durable bond.

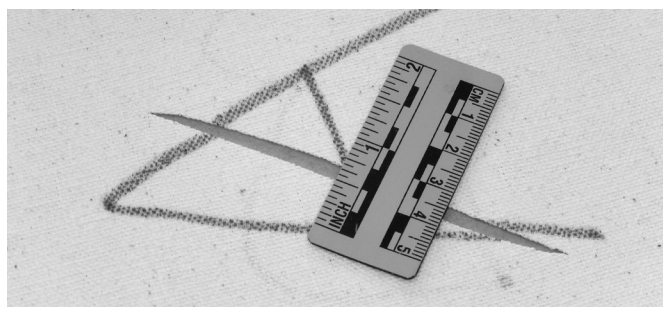
The finished sheets will look like this:



Application

The application of CAS tractors is also simple and straightforward. One half of the tractor is adhered to one side of the tear, the strip is stretched out across the gap in the canvas and the other half is secured to the opposite side of the tear. The elongation of the adhesive carrier results in elastic tension between the two halves of the strip, resulting in traction across the tear.

A small mock up was prepared and is presented by way of illustration.



Step by Step

1. Prepare strips.

Cut a number of strips for use, the width and count to be determined by the size of the tear and the surface characteristics of the substrate to which they are to be applied. A number of smaller strips is often more advantageous than full-width strips. Narrower strips are easier to work around and under where the tractor spans the tear. When the strips are applied to the face of the painting, narrow strips often make it easier to accommodate the irregular topographical features on the painted surface.

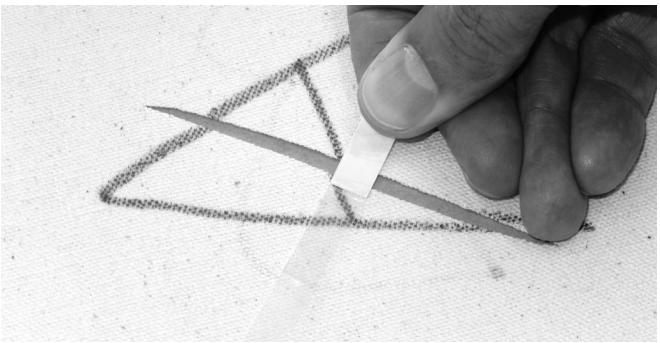
2. Peel back release paper and position strip.

Peel the release paper back from one end of the strip, and fold it back on itself just beyond the gap in the polyester. I usually peel back from the tab end. It is easiest. Generally, it makes little practical difference, unless one has to trim a tractor to accommodate some topographical feature on the painted surface or other previously attached tractors. In this

case, the trailing end of the tractor, opposite the pull-tab, is trimmed and applied first. **Under no circumstances should the pull-tab be trimmed or removed.**

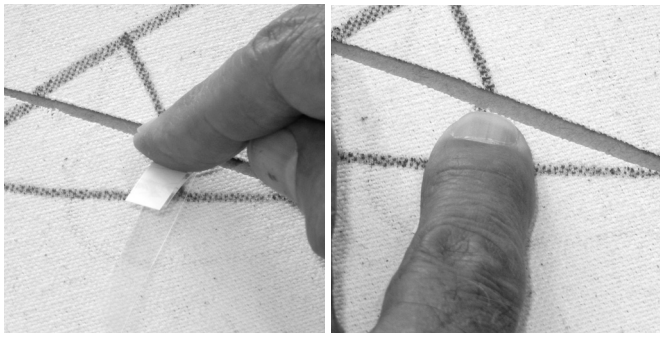
With the strip oriented so that the unexposed adhesive side extends over the gap, the exposed adhesive side is set down on one side of the tear with the leading edge of the polyester film as close to the edge of the tear as is comfortable. Apply brief pressure to establish the initial bond.

If applied to the painted surface, the polyester should not overlap fragments of paint and ground that might require manipulation during the closure process.



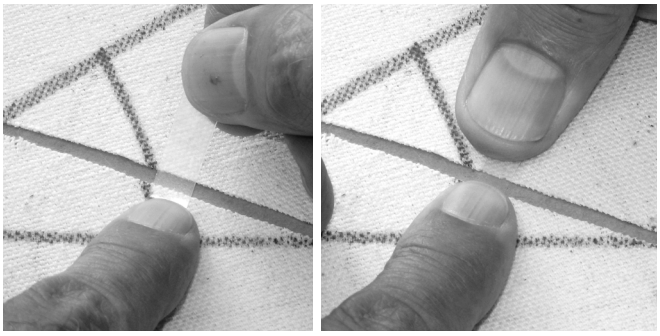
3. Secure one half of strip.

Once initial contact has been made, the tractor strip is folded back on itself, so that the release paper is on top, and the strip placed under pressure for 20-30 seconds. It is helpful to apply the pressure with a fingertip oriented so that full pressure is exerted on the folded edge of the Tractor strip. This optimizes adhesion of the CAS to both segments of polyester film at the points of most likely potential detachment in advance of elongation.



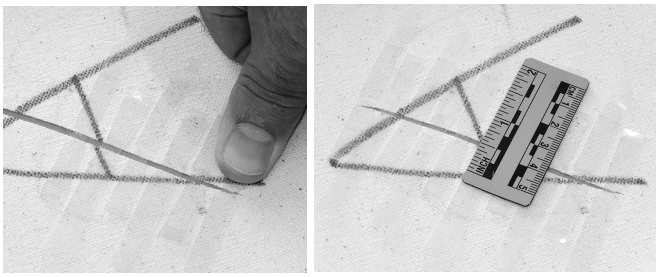
4. Elongate and secure other half of strip.

Once the first side is secure the remaining release paper is removed from the tractor. Securing the attached side with pressure at the leading edge to minimize elongation and detachment beneath the polyester film, the free end of the tractor is gently pulled, as much as possible in the plane of the canvas, until it has elongated across the tear to a point where it can be comfortably secured to the opposite side. Pressure is applied along the entire length of this end of the tractor for 30 seconds to form a strong bond to the substrate.



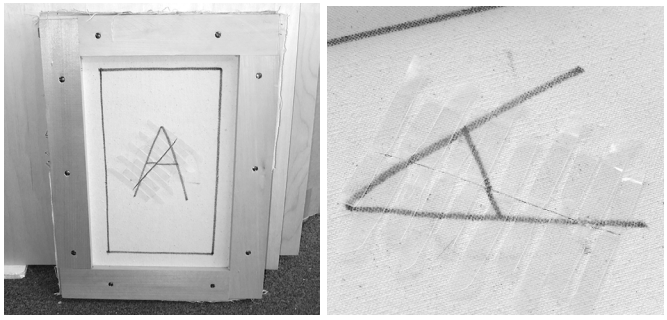
5. Finish application of strips.

This process is repeated until tractors have been placed along the entire length of the tear. Often, as traction is applied in the course of application, the tear will close significantly, almost by half in this instance, by the time the process is complete.



6. Allow time for tear to close.

The painting is then placed upright and left overnight. The next day, if one is lucky, the tear will have miraculously closed itself. If one is less fortunate, the process is repeated as necessary, achieving incremental steps in each round until satisfactory results are achieved. In practice, with large or complex tears two or three bouts may be required, as well as numerous local adjustments.



At this point the closure can be secured on the opposite side of the painting (recto/verso) with 3M CAS stators, as described above, or stout tissue paper facing, BEVA Band-Aids, etc. One can then remove the tractors and proceed with further refinement of the repair of the painted surface and/or the mending of the canvas.

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Additional notes based on the author's experience

The tractors can be applied to either the recto or the verso of the painting. In practice it is often done alternately on both. Which and in what order is a matter determined by the nature of the painting and requirements of the damage, and the preference of the practitioner acquired with practice and experience. However, initial closure is often achieved with tractors applied to the painted surface, leaving the canvas on the obverse open to unencumbered mending.

The use of heat for thread-by-thread repairs will not affect attachment of tractors (or stators), provided that it is confined more/less to the ruptured portion of the canvas where the tear is spanned by an unsupported length of the CAS. Heating farther afield, above 125ºF, may cause adhered portions of the tractors to release.

Caveat: Before use on any painted surface the ability of the substrate to withstand the application and removal of 3M CAS should be determined by careful testing in a representative, preferably discrete location. Friable surfaces may need to be consolidated before treatment. In the area of the damage, fractured paint and ground should be consolidated and stabilized as necessary to prevent further damage or loss. In some instances it may be necessary to move the points of attachment back from the edge of the tear, beyond the zone of proximate damage to the painted surface.

Dislodged fragments of paint and ground along the tear should be restored to their original location and secured as necessary to provide for the most effective, seamless union of the two sides of the tear as they come together. Initial relocation and stabilization is often augmented by mini- or micro-facing to secure and safeguard damaged areas during traction.

When applying tractors / stators to canvas, especially older canvases with friable surfaces, it may be advantageous to size the area of attachment beforehand to assure a secure bond. As seen in the case of the mock up, this is not generally necessary with relatively recent canvases encountered on modern paintings.

It sometimes happens that the canvas does not properly align after the first traction treatment. This can be resolved by placing tractors at appropriate angles to correct translation along the tear, either augmenting the initial tractors as necessary or in subsequent rounds of traction.

The order in which the tractors are applied can make a difference in both the effectiveness of traction and the correction of distortions in the damaged canvas. Heiber has suggested that starting at the center where the opposed threads often remain parallel, if not properly aligned, and working out towards the ends of the tear, where one often encounters some Gaussian distortion of the weave, may be preferable as far as reversal of distortion in the weave and minimizing puckering at the termini of the tear. On the other hand, by starting at the ends of the tear and working inward, each added Tractor supplements the traction of the former, and closure proceeds more rapidly and effectively.

How one applies each tractor seems fairly arbitrary. However, I tend to alternate the direction of the tractors and the side of the tear to which each is attached first so that one is alternately tensioning from one side to the other, both in application and removal.

Likewise, which end of the tractor gets peeled and set down first is a matter of preference. My own has come to be to peel down from the pull-tab and apply this side first. It is simply easiest. However, there are exceptions, in which it is necessary to cut the tractor down to fit in some confined space. In such instances the blunt, trailing end of the tractor is cut to length and the short side is set down first. Under no circumstance should one ever remove the pull-tab.

Some elongation and release behind the polyester on the side being drawn out, and sometimes on the secured side as well, is normal and unavoidable, but does not adversely affect the effectiveness of the tractor. One simply elongates until one feels that sufficient tension is attained, which sense only comes with some practice and experience, and varies from painting to painting.

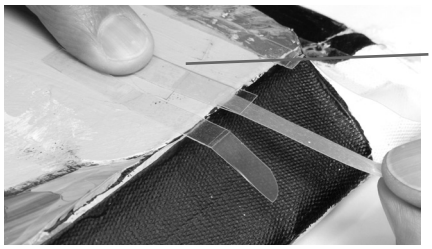
One should not overestimate the amount of elongation or tension required. Especially on larger paintings, where the tension on the canvas is widely distributed, it is easy to overestimate the traction required, resulting in tenting or overlapping where the opposed edges of the tear have butted up together too forcefully.

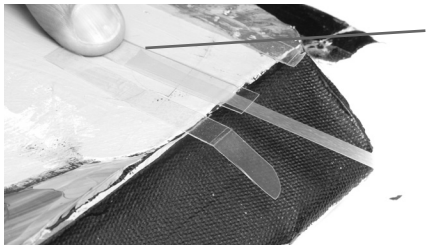
Removal

The removal of CAS tractors is also, not surprisingly, usually simple and straightforward. In essence they are removed in exactly the same manner as any other 3M CAS: by pulling steadily on the tab provided, the CAS elongates and the adhesive releases.

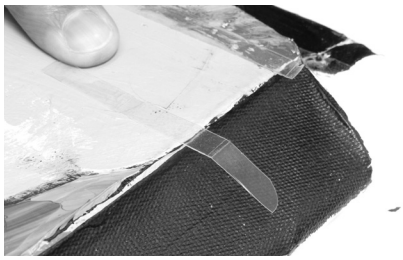
If the mend is not finalized, it is necessary to otherwise secure it before removal of tractors or the lateral tension on the CAS might undo the closure. The closed tear in the mock up was secured on the verso with a large size CAS stator before removal of the tractors.

Another benefit of using the clear strips and clear polyester film is the ability to monitor the progress of the release as it proceeds along the CAS with elongation. As one pulls on the strip, the polyester backing will start moving and one will also see the line of release in front of the adhesive moving away from the tear. This procedure is repeated with each tab until they are all removed.





The finger securing the end of the strip moves back as the adhesive releases.



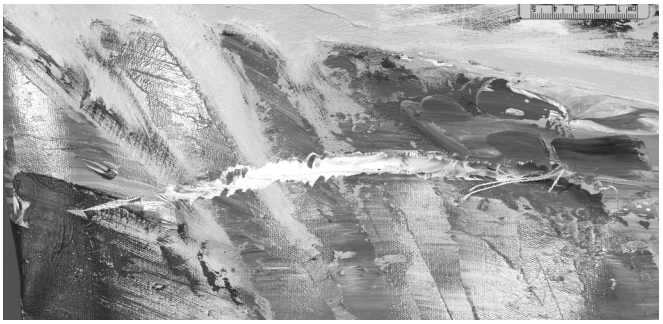
I have yet to encounter an instance in which, if the surface of the substrate was properly prepared and the tractor / stator judiciously applied, the CAS ever failed to release as intended. This is probably due in no small part to the usual small scale of the pieces being bonded. In case of the tractors the greatest contiguous length of adhered interface is usually 1". So, on the rare occasion that a CAS tears / breaks before complete release is effected, the leading piece of polyester can be removed and the exposed CAS used as a tab by which to pull, elongate, and separate the remaining portion of the tractor.

In the event that the tab or the CAS breaks in such a way that some portion of the CAS is not accessible, the adhesive can be released with heat. CAS "Temperature Resistance" reported by 3M in their published literature is 15-120ºF (-10-50ºC), with a caveat that "Adhesive could soften and lose adhesion above 105ºF (40ºC)." Thus they can be removed with a warm tacking iron at temperatures that would not be expected to adversely affect other thermoplastic, hot-melt adhesives in general use in painting conservation.

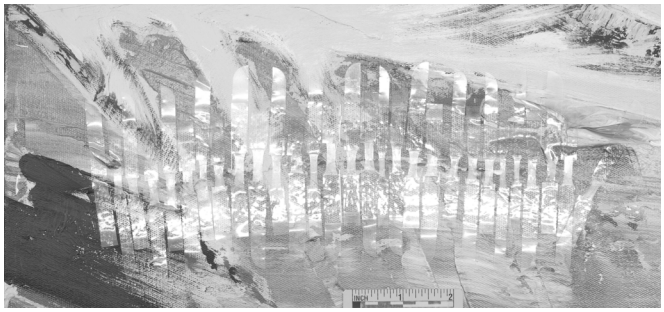
Alternatively, 3M also warns that the adhesive is "not for use in wet environments." This characteristic is exploited to release any undesirable adhesion of a CAS where it spans a tear under tension by simply introducing water beneath the elongated portion of the tractor. It might also be used to induce failure of the adhesive to remove a tractor in an emergency. However, aqueous reversal has not been tested to date. It obviously poses potential risks of damage to any paintings comprised of water sensitive materials and should only be attempted as a last resort after thorough and cautious testing on a case-by-case basis.

Practical Example

The efficacy and effectiveness of this technology is illustrated with images of its actual application on a 12-inch tear in a 44" x 96" canvas.



Tractor arrangement at the end of round three of traction, in which final adjustments are being made to the painted surface before final fixing of mend on verso.



Area of damage after treatment, raking (oblique) light.

Resources

3M Command Adhesive Strips: The Binding Source (bindingsource.com)
Command™ Clear Medium Refill Strips 17021CLR - 9 strips/pack - Refill and Mounting Strips
Command™ Clear Small Refill Strips 17024CLR - 12 strips/pack - Refill and Mounting Strips
Command™ Clear Assorted Refill Strips Value Pack

Clear Polyester 2 mil 1" x 500' spools from University Products (cat #415-0010)

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The Conservation of Easel Painting (2012): Stoner, J. H., & Rushfield, R., eds., Routledge, London, 2102, pp. 384ff.

Articles You May Have Missed

There Is a Secret Villain Threatening the World's Masterpieces. It's Soap. *Art Net News*, 05/24/2017

A team of researchers are working to find a solution to an unlikely scourge that is marring the surfaces of canvases around the world: soap.

Conservation scientists say that tiny formations of lead-based soaps are threatening to mar paintings by artists ranging from Rembrandt van Rijn to Georgia O'Keeffe. A team of experts has spent years researching why these microscopic white pockmarks appear—but they can't figure out how to stop them.

University of Delaware professor Cecil Dybowski has been researching these pesky soaps over the last four years with Silvia A. Centeno, a research scientist at New York's Metropolitan Museum of Art. The long-term goal of the project, funded by a joint $590,000 grant from the National Science Foundation, "is to find out what factors affect the reaction itself and figure out procedures to ameliorate those problems," Dybowski says.

Through their work, Dybowski and his team have proven for the first time that water and humidity are major contributing factors in this soapy conservation nightmare. If enough metal soap forms on a painting's surface, it can lead to delamination, and the paint can flake off the canvas in layers, destroying the artwork. Soap also does not discriminate. The problem is so widespread that clever forgers even incorporate lead soaps to make a painting appear older.

One added challenge? Water is generally considered one of the safest cleaning products in the world of conservation—but that is not the case when it comes to lead soap. Instead, water may actually encourage the formation.

"Here's How Much Money Museum Employees Really Make," *Art Net News*, 06/29/2017

A new survey conducted by the Association of Art Museum Directors (AAMD) provides hard data on the average salaries for curators, conservators, registrars, and other museum staff members—as well as which roles in this notoriously poorly paid field have seen the biggest salary bumps in recent years. The AAMD teamed up with the consulting and analytics firm Stax, Inc., to survey 219 museums in the US, Canada, and Mexico about what they pay their employees. The AAMD launched its first salary survey way back in 1918 and began collecting the data in a more formal way in 1991, but this marks the first time it has made its report free to the public.

Unsurprisingly, top administrative positions are the best compensated: The highest-paying museum gigs are director ($293,988 average annual salary), deputy director ($173,572 average salary), and chief operating officer ($172,872). Chief curators ($143,412) and chief conservators ($118,271)—two roles that require either an advanced degree, lengthy training, or both—also fall towards the top of the salary hierarchy.

The lowest-paid positions are: security guard ($33,974), education department assistant ($37,801), and curatorial assistant ($42,458). The second fastest-growing salaried position? Curator.

"Tomb Robbing, Perilous but Alluring, Makes Comeback in China," *New York Times*, 07/15/2017

Grave robbing has made a roaring comeback as the global demand for Chinese antiquities has surged.

With prices for some Chinese antiquities reaching into the tens of millions of dollars, a flood of amateur and professional thieves looking to get rich quick has hit China's countryside. While accurate figures are difficult to come by, the looting has resulted in the permanent destruction of numerous Chinese cultural heritage sites.

In 2016, China's State Administration of Cultural Heritage reported 103 tomb-raiding and cultural relic theft cases. During the post-Mao opening of China in the 1980s tomb-robbing became an epidemic. Farmers, whose families had for generations been charged with safeguarding local tombs, began moving off the land and into cities. Vast areas were turned over to make way for subway tunnels, apartment buildings and highway networks. Construction sites doubled as archaeological pits, and countless tombs and historical relics were unearthed in the process.

As the market for Chinese art and antiquities exploded, so too did the number of forgeries. After reaching a peak in the early 2000s, officials say instances of tomb robbing at major heritage sites have decreased sharply in recent years. But the downside to having a civilization more than 5,000 years old is that cultural heritage sites are everywhere, making comprehensive protection all but impossible.

Despite all the looting and destruction, some say there has been one small silver lining. When it comes to unopened tombs, Chinese cultural officials typically take a more conservative stance, opting to protect rather than excavate. As a result, tombs that have already been opened by tomb raiders have become gold mines for archaeologists.

"The Vatican Discovers New Paintings by Raphael Hidden in Plain Sight—Right on Its Walls," *ArtNet News*, 07/06/2017

It's not every day that you find a new Raphael lying around, but such is life in the Vatican. Experts have discovered that Italian Renaissance paragon Raphael had a key role in painting the Room of Constantine in the papal apartments after a restoration yielded clear evidence of the master's hand.

It was previously thought that the magnificent reception room was painted by the artist's workshop after the Raphael sketched in general outlines, as the artist was thought to have died before its completion.

Not so, Vatican conservators now believe. Arnold Nesselrath, art historian and head of technical and scientific research at the Vatican Museums, stated, "We know from 16th-century sources that Raphael painted two figures in this room as tests in the oil technique before he died. According to the sources, these two oil painted figures are of a much higher quality than the ones around them."

"Violent Storms Invade the Louvre, Damaging Art by Poussin and Other Holdings," *ArtNet News*, 07/17/2017

Louvre Museum officials have revealed the details of the artworks damaged by the violent storms that shook Paris on July 8-9. Two works by Nicolas Poussin were among those damaged on Sunday July 9, as the French capital saw

two inches of rainfall in just an hour, with the tempest flooding several metro stations and infiltrating the Louvre.

In a press release published last Thursday, the French museum confirmed that water had invaded the mezzanine of the Denon wing, affecting the "Arts of Islam" and "From the Mediterranean Orient to Roman Times" rooms, both of which have been closed pending hygrometric stabilization.

Water also entered the first floor of the Sully wing, affecting the "Salle des Sept-Cheminées" and Henri IV staircase, and the second floor of the Cour Carrée, affecting some rooms housing French paintings.

Despite the immediate implementation of emergency measures by museum staff, water damage was observed on the varnish of two (Spring and Fall) of the "Four Seasons" paintings by Nicolas Poussin, and a large format work by Jean-François de Troy, The Triumph of Mordecai (1736).

The Poussin works were immediately removed as a precaution and the Jean-Francois de Troy unhooked from the wall. Three paintings by Georges de Latour and Eustache Le Suer on the second floor of the Sully wing have also been evacuated as a preventative measure.

"A de Kooning, a Theft and an Enduring Mystery," *New York Times*, 09/09/2017

Willem de Kooning completed "Woman-Ochre" in 1955. It depicts a defiantly naked figure facing the viewer, arms akimbo. Three years after de Kooning finished the painting, a benefactor of the University of Arizona Museum of Art in Tucson bought it for the institution. And 27 years after that, in 1985, it was stolen — cut from its frame.

It was finally recovered last month, and investigators are focusing on several theories. And one of them is, in its own way, extraordinary: They are trying to determine if the heist was engineered by a retired New York City teacher who donned women's clothing and took his son along as his accomplice, and then hung the masterwork in the bedroom of his own rural New Mexico home, where it remained.

In other words, they are examining whether he stole a painting now valued at in excess of $100 million simply so he could enjoy it.

The teacher, Jerome Alter, and his wife, Rita, both died at 81, he in 2012 and she earlier this summer. "My driving instinct is to say: 'This couldn't be my aunt and uncle who had it since the beginning,'" said Ron Roseman, Rita Alter's nephew.

David Van Auker, an antiques and furniture dealer whom Mr. Roseman hired to appraise the contents of the Alters' home, discovered the painting. Some determined Google searching turned up photographs of the stolen artwork and an Arizona Republic story from 2015 about the 30th anniversary of the theft.

Mr. Van Auker called the museum that evening, and a day later, a Friday, a team of excited staffers — including a curator, an archivist and the interim director — were in Silver City examining the painting. They took it back to Tucson the following Monday, and preliminary work was done to authenticate it. It was a very emotional homecoming at the museum, which had been hoping for nearly 32 years to get "Woman-Ochre" back.

"Restoration Reveals Hidden Figures in Div School Reformation painting," *Yale News*, 10/05/2017

Martin Luther sits at a table surrounded by other leaders of the Reformation. A Bible is opened in front of him. A candle burns at the table's center.

The scene is depicted in a 17th-century painting that for years has graced a hallway at Yale Divinity School. The painting by an unknown artist was removed last year for restoration and cleaning. Its paint was cracked and flaking in places.

Kathy Hebb, a conservator, examined the painting under a microscope in her studio in Guilford, Connecticut, and saw colors underneath cracks in the painting's foreground. She found other examples of the same scene and discovered something was missing from Yale's version — an omission that entirely altered the painting's meaning.

Other versions of the image, such as an engraving housed at the British Museum, show figures of a cardinal, a bull, a pope, and a monk in front of the table futilely attempting to blow out the candle, which represents the light of the Reformation.

A heavy layer of gray paint concealed the four Catholic figures in Yale's version as well as the text. Hebb set to work uncovering the lost figures. She has painstakingly shaved away the insoluble over-paint using surgical scalpels under a microscope. Slowly but surely, the cardinal, bull, pope, and monk have emerged.

Hundreds of years under the paint protected the Catholic figures, which are brighter and in better condition than their Protestant counterparts.

The painting has returned to the Divinity School where it will be on view in the Sarah Smith Gallery as part of an exhibit marking the upcoming 500th anniversary of Oct. 31, 1517, the day Luther delivered his Ninety-five Theses to the Archbishop of Mainz, igniting the Reformation.

"Banksy's Snorting Copper Back on the Beat after Restoration," *BBC News*, 10/06/2017

Jet washed, painted over and attacked by thieves, Banksy's Snorting Copper artwork in London's Shoreditch had been thought lost forever. So just how has the £1m piece been brought back into public view - and is it still "a Banksy" at all after so much restoration work?

The mural, stencilled on an East End toilet block under the cover of darkness in 2005 and showing a policeman apparently sniffing cocaine, garnered instant intrigue and notoriety. Having been hidden from view for a decade, it is now back on the beat in its original location after a painstaking restoration process.

"We knew - or we thought we knew - the Banksy was there," says property developer Jonathan Ellis, who along with David Kyte purchased the site and turned it into a mix of residential and commercial units.

The section of wall was lifted off the building site and taken to Fine Art Restoration Company in Carlisle, Cumbria. A team of six experts worked tirelessly, initially compiling images of the undamaged piece and working out what lay where. Restorers carefully stripped and scraped each brick to reveal the underlying artwork.

"Lots of energy was put into finding out which brick had which piece of the artwork so when we were using the solvents to strip back the many layers of white paint we knew what colour we were looking for underneath," says Chris Bull, technical director.

With the work complete and the section of wall now attached to a steel frame, the piece has been valued at £1.25m. Determined, they say, not to sell it on for a quick buck, Ellis and Kyte put it on public display on the site where it was first painted - although this time it is inside the revamped building and protected behind glass with the added security of CCTV cameras and alarms.

"Getty Director Tapped to Lead National Trust board," *KPCC,* 10/12/2017

Timothy Whalen, director of the Getty Conservation Institute, has been elected to serve for three years as the Chair of the National Trust's Board of Trustees, the organization announced Thursday.

The National Trust for Historic Preservation is a non-profit that works to preserve many of America's historic places. The group is launching a new program to preserve "places that represent the diversity of the American experience," according to a press release.

Whalen has directed the Getty Conservation Institute since 1998, where he leads efforts to advance conservation in visual art. He has also worked with the National Trust since 1999, first serving as an advisor and later as a member of the organization's Board of Trustees..

"Drawing by Farting: Phantom Raspberry Blower of Old Copenhagen Town is Uncovered," *Copenhagen Post*, 10/11/2017

The famous 19th century French flatulist Joseph 'Le Pétomane' Pujol, thanks to his ability to inhale air and water through his rectum, could perform all manner of fart noises, from crowing roosters and cannon fire to a stirring rendition of 'La Marseillaise'. Corseted women at the time were known to laugh so hard they passed out.

But even Le Pétomane would have struggled to match the feat of the visitors to National Gallery of Denmark and the Black Diamond, whose collective hydrogen sulphide emissions – containing sulphur, the ingredient that makes a fart stink – have considerably darkened lead-white pigment on numerous graphic works held by the establishments.

In some cases, it can take only a decade to alter a piece of art forever. Researchers at SMK detected changes to 433 Danish and foreign works kept in storage, while the Black Diamond discovered damage to 200 in its care. A 30-month investigation by experts hired by the institutions, who installed various hydrogen sulphide measuring devices, concluded that while the storage facilities may have been partially responsible, the main culprit was an old air conditioning system that sucked up and then emitted unfiltered air from the exhibition halls.

The establishments are accordingly updating their air conditioning systems.

"Portrait of Mary, Queen of Scots Discovered Underneath 16th Century Painting," *Art Daily.com*, 10/31/2017

An unfinished portrait of a woman believed to be Mary, Queen of Scots has been found hidden beneath another 16th-century portrait during a significant research project recently conducted at the National Galleries of Scotland and the Courtauld Institute of Art.

The ghostly image of a woman, which shows compelling similarities to other, near-contemporary depictions of the queen, was revealed by X-ray photography during an examination of a portrait of Sir John Maitland, 1st Lord Maitland of Thirlestane, which is attributed to Adrian Vanson.

The portrait was one of a number of works by the portrait painters Adrian Vanson and Adam de Colone, two Netherlandish artists who worked in Scotland at the end of the 16th century and beginning of the 17th century, to be examined by conservator Dr. Caroline Rae, the Courtauld Institute of Art's Caroline Villers Research Fellow, who recently undertook a collaborative research project in conjunction with NGS.

Dr. Rae was able to trace the outline of a woman, whose appearance indicates she is likely to be Mary,, based on distinct similarities to other depictions of the queen made during her lifetime, and in particular during her later years.

Despite the fascination with which Mary, Queen of Scots was regarded both during her lifetime and subsequently, there are relatively few authentic portraits of her, and in particular few images from her life in Scotland.

"This Thangka Restorer is the Force behind an Isolated Monastery Museum in Ladakh," *Architectural Digest*, 11/02/2017

Matho Monastery in Ladkah is home to a rare collection of 600-year-old Thangka paintings and a potpourri of artefacts from the trans-Himalayan region.

Founded in 1401 by Lama Dugpa Dorje, the Matho Gompa (monastery) is the only one in Ladakh that belongs to the Sakya School of Tibetan Buddhism. Currently housed in a couple of small rooms in the gompa, these artefacts will soon be shifted into the grand four-storeyed Matho Monastery Museum, which has been under construction since January 2011.

One of the major driving forces behind the museum is a 35-year-old Thangka restorer from France, Nelly Rieuf, who has been living and working in the gompa for the last 6 years. This French art conservator, also a mother to a toddler and now pregnant with her second child, says that being a woman has been more an advantage than a disadvantage.

However, the challenges of living in a high-altitude village are catching up with her as she grows older. While she is looking forward to the completion of the museum project sometime this year or next, she is constantly harrowed by the living conditions in the village,

"At 3,800 metres above sea level, with non-drinkable water, lack of diversity in food and being isolated from the world, the living conditions can be quite harsh." Her team comprises her husband, Tashi, a public relations manager who communicates with the monks and the villagers, and Gurmet, a young student from Secmol, an alternative school in Leh.

In addition to these, international interns and experts propose projects on different aspects of museum making. The monks and the villagers also assist the team. Nelly takes pride in a team of local village women who now assist her with Thangka restoration.