western association
waac
for art conservation
Newsletter

January 2010 Volume 32 Number 1

President's Letter

Marie Labinis-Craft

Dear Membership,

Greetings and Happy New Year! I'm honored to step into the role of President of WAAC and look forward to our next annual meeting in Portland this September. Plans are underway with the Portland Art Museum (PAM) and possibly a couple other venues for functions but they're still in the planning stages. I'm hoping the meeting will be educational for the WAAC membership and the greater Portland arts community as well.

The annual meeting was last held in Portland in 2002, which doesn't seem very long ago, but much has changed since then. The Portland Art Museum has a new Executive Director, and the museum purchased the former Masonic Temple next door (in 1980s), which was renovated and now holds the Jubitz Center for Modern and Contemporary Art.

Former president, Claire Dean, wrote much regarding the city of Portland in the 2002 *WAAC Newsletters* so I thought I'd augment her information about Portland with some fond memories of my time and history, especially as I have come to know the city, its art organizations, and conservation community.

In 1993, my husband Steven was offered a graphic design position at Nike. We were living in Los Angeles, and I came up with Steven for the interview to see what Portland was like. It was so green and beautiful although it was a rainy, 60 degrees Fahrenheit day in July; but I soon came to see coffee would take care of that. Coffee is a staple in the Pacific Northwest, which has an abundance of coffee hut drive-thrus and Starbucks.

Just before our move to Portland, I received my acceptance letter from the Winterthur Conservation Program at the University of Delaware. Both opportunities were too good to turn down so I decided to commute from Delaware to Portland. Fortunately, I spent the next two summers in Portland, the first as an intern at PAM, and the second as an intern on the restoration of the Astoria column, with Claire Dean and Jonathan Taggart.

As I came to see, the Portland Art Museum has a great history; it's the oldest museum on the west coast and one of the seven oldest in the nation. I was really amazed when I learned that the 1913 Armory Show traveled to Portland, which was the only west coast venue. Sally Lewis, whose collection of Roman classical bronzes I was rehousing, was friends with Brancusi and many European artists and was instrumental in bringing the show and modern art to Portland. She later donated her sculpture, Brancusi's *A Muse*, to the museum.

During my summer internship at PAM, I was fortunate not only to have the opportunity to watch artists Mike and Doug Starn install their work *Sphere of Influence*, but also to sit a few feet away from them in the park a few times during lunch. (I still kick myself for not going over to say hello.) I also saw Spaulding Gray's monologue, Gray's Anatomy, which I missed in LA because it sold out within the first few hours, unlike Portland, where we bought tickets the same week. I started to see there were some great advantages to living in this small beautiful city.

Conservation also has a long history in Portland. The Pacific Northwest Regional Center was established in the 1970s at PAM with the help of NEA funding. Unfortunately over time, the regional center did not last because as with many centers established throughout the country with NEA money, sustainable funding was not established or forthcoming. However, PAM kept the laboratory and conservation work continues on the museum's collections.

When I interned at PAM in 1994, the conservation lab was located on the same

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President's letter, continued

floor as the Museum Art School, which is now the Pacific Northwest College of Art. This was the last time I would see both the school and conservation lab, which were subsequently moved off site while PAM went through renovations over the next few years. I'd like to thank again the two conservators at PAM, Sonja Sopher (now retired) and Elizabeth Chambers, who offered me the opportunity for my internship.

Although I anticipated coming back to Portland after graduation, I was side tracked by a post graduate internship. Then Steven was transferred to Nike Europe for the next three and a half years; so I didn't make it back to Portland again until 2000. In the next newsletter, I'll pick up from here and talk about the past ten years in Portland as much will pertain to where I intend to go with the theme of the meeting, "Expose Yourself to Art, Collaborations in Conservation," or at least something along these lines.

Before I finish, I'd like to thank outgoing president Scott Carrlee, who put together a wonderful meeting in Juneau. The papers presented were informative, ranging in topics from the set up of painting conservation studios to sculpture conservation to archaeological conservation projects in Alaska, which very much reflected conservation in the extreme. It was my first time to the beautiful state of Alaska, and I look forward to another chance to return to see the large mosquitoes I heard so much warning about, but never saw.

Many thanks to the nominating committee, Marie Svoboda, Suzanne Friend, Albrecht Gumlich, and Dana Senge, and special thanks to the members who ran for office, I hope and encourage all of you to run again. Serving on the WAAC board of directors has been a great experience and opportunity to make new friendships in the western conservation community and participate in conservation's future.

Best wishes to all for a peaceful and happy 2010,

Marie LC

WAAC 2010 Election Join the Board!

Submit your name for the 2010 election. We are seeking candidates for:

Member-at-Large: Two year commitment. Duties are to attend five board meetings over the course of two years and assist with major projects such as the annual meeting.

Vice President: Two year commitment, the first as Vice President, the second as President. Vice President attends three board meetings, runs the election, and edits the regional news column for the *WAAC Newsletter*. In the following year, the President is responsible for attending two board meetings and planning and executing the Fall Annual Meeting for WAAC.

Contact: Dana Senge at dksenge@gmail.com or 206-225 –0993 for more information or to submit your name for consideration.

Election Schedule: Gathering nominations and candidates from April 5, 2010 to June 18, 2010. Voting scheduled to take place between July 1-July 31, 2010.

Thank you!!!

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WAAC Newsletter

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EDITOR

Carolyn Tallent

REGIONAL NEWS

Dana Senge

HEALTH & SAFETY

Chris Stavroudis

ARTICLES YOU MAY HAVE MISSED

Susanne Friend

COPY EDITOR

Wendy Partridge

Photocopying

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Internet

Articles and most columns from past issues of WAAC Newsletter are available on-line at the WAAC Website, a part of CoOL (Conservation OnLine) hosted by Stanford University Libraries, at http://palimpsest.stanford.edu/waac/.

Deadline

Contributions for the May *Newsletter* should be received by the Editor before **April 4, 2010.**

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 $35 per year ($40 Canada, $45 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 $40 per year ($45 Canada, $50 overseas) and entitles the institution to receive the WAAC Newsletter and Membership Directory. For membership or subscription, contact the Secretary.

The Membership Directory

hard copy or pdf — your choice

The WAAC Board has proposed that the yearly Membership Directory be distributed electronically. This will save printing and mailing costs and seems like an ecologically responsible decision as well.

The money saved by printing and distributing the Membership Directory electronically will be donated on an ongoing basis to FAIC to help support Conservation On Line (CoOL) and the Conservation Distribution List (Cons DistList). The WAAC Board is also investigating other ways to contributing our fair share of the cost of keeping CoOL and Cons DistList operating.

The Directory will be distributed by email as a pdf file to WAAC members. Please note on the 2010 Membership Renewal forms there is a space to indicate your preference for e-delivery of the Membership Directory. If you specify electronic delivery of the Directory on your 2010 renewal, WAAC will automatically send the 2009 Directory via email.

If you would like to get the 2009 WAAC Membership Directory before you mail in your renewal notice, please drop a note to waac@att.net.

If you would prefer a printed version of the 2009 WAAC Membership Directory, please contact either WAAC Secretary Brynn Bender or Member-at-Large Albrecht Gumlich. Ultimately, WAAC members who did not specify electronic delivery of the 2009 WAAC Membership Directory will be sent a copy via conventional mail.

Regional News

Dana Senge, column editor

ALASKA

Monica Shah co-presented a workshop with **Scott Carrlee** on collections care in Unalaska at the statewide museum conference. Visiting the Aleutian Islands and visiting the WWII sites brought home the war's impact on Alaska and how this impact has shaped policies since then. Monica has also been treating recent acquisitions in preparation for an exhibit after the new year, ranging from large ceramics to small ivory figurines.

Scott Carrlee is working on a chapter for a book on stewardship of collections which will be published by Altamira Press. He is also working on a project to bring paper conservator **Seth Irwin** up to work at small museums throughout Alaska beginning in the Spring.

Ellen Carrlee is working with **Dana Senge** on various PEG preservation issues for archaeological basketry for presentation at the May 2010 AIC and WOAM conferences. Ellen is also developing an online identification reference for mammal fur found on Alaska Native artifacts with the help of UCLA/Getty third year intern **Lauren Horelick**.

Regional Reporter:
Ellen Carrlee

ARIZONA

The Musical Instrument Museum (MIM) in Phoenix, Arizona is scheduled to open to the public on April 24, 2010, and preparations are progressing at a feverish pace. Construction on the new building recently ended, and the collections have begun their cross-town move from the temporary work and storage facility. Each exhibit at MIM will highlight the musical traditions of a particular country. Among the most impressive recent installations are an Indonesian gamelan, complete with roughly 100 shadow puppets mounted in a faux-banana log, and a 22-foot long Decap dance organ.

Barbara Hamann, head of conservation has been working with the MIM's architects and engineers to ensure that the visible conservation lab is fully functional before the staff move in. **Meghan McFarlane** leads the treatment efforts on Asian instruments. Lately, her work has focused on the treatment of flaking paint on Indonesian shadow puppets and the cleaning and assembly of a gilded and mirrored orchestra set from Burma.

Irene Peters leads the treatment of instruments from the US, Canada, and Europe. Her recent treatment highlights include exploring methods for making bagpipes appear inflated for display, and performing repairs on Western stringed instruments. **Daniel Cull** oversees the treatment of instruments from Latin America, Oceania, and Africa. He is currently experimenting with ways to fill termite damaged wood, and has successfully reassembled several broken and sprung gourds.

Brynn Bender, **Maggie Kipling,** and **Audrey Harrison** treated two historic river boats owned by Grand Canyon National Park while the boats were on exhibit at the John Wesley Powell River History Museum in Green River, Utah. They also traveled to Mesa Verde National Park during the beautiful off season to survey pre-historic collections on exhibit.

Maggie and Audrey continue to treat ceramics at the National Park Service center in Tucson with assistance from pre-program intern **Kevin Wohlgemuth**.

Holly Young reports that the Pueblo Grande Museum has received official notice of its re-accreditation. Despite setbacks and staff reductions due to the flagging economy, the Accreditation Visiting Committee site visit team found the museum to be a "well managed, well governed organization.... that has maintained forward momentum in difficult times."

The Arizona State Museum conservation lab continues a diverse range of projects despite the sabbatical absence of **Teresa Moreno**. **Nancy Odegaard** made presentations at the Tribal Library Archive and Museums conference in Portland and at the North Carolina Preservation Consortium in Chapel Hill.

Nancy, **Gina Watkinson,** and **Werner Zimmt** are guiding the doctoral research of **Christina Bisulca** (consolidation of bone from a late Pleistocene Clovis kill site material), **Molly McGath** (development of nano-particle CaOH for treatment of archaeological cordage), and **Lesley Frame** (treatment of a multi-component archaeological alarm clock), as well as supervising pre-program interns **Amy Molnar** and **Emily Kleinkauf**.

Marilen Pool and **Esther Echenique** continue to work part-time on the ASM ceramic project and other interesting object treatments. Lab work is represented with three chapters in the new book *Holding it All Together* (Archetype).

Congratulations to **Caitlin O'Grady** and **Lesley Frame**, the first PhD graduates of the Heritage Conservation Science doctoral program in the Department of Materials Science & Engineering at the University of Arizona.

Regional Reporter:
Brynn Bender

GREATER LOS ANGELES

LACMA conservators **Elma O'Donoghue** and **Bianca May** are restoring two 18th-c. paintings by Mexican artist Juan Patricio Morlete Ruiz. The paintings, acquired in 2007, belong to a set of six which are based on the famous series by Claude-Joseph Vernet, *The Ports of France*. All six works will be restored in the coming months.

Joe Fronek recently completed restoration of an important work in LACMA's collection, Rembrandt's *Portrait of Dirck Jansz Pesser.* The portrait will be on view beginning in January 2010 in the museum's newly renovated Dutch galleries. Other European galleries will open in the following months. Renovations include a reconfiguration of the galleries and a new lighting system designed by Hefferan Partnership Lighting Design.

Textiles conservators **Catherine McLean** and **Susan Schmalz** have been busy preparing objects for catalogue photography for LACMA'S upcoming show *Fashioning Fashion* which will open in the new Lynda and Stewart Resnick Exhibition Pavilion later this year**.**

Laleña Vellanoweth will be volunteering in textiles conservation during school breaks in 2010. **Lynn Bathke** began her post-graduate internship in textiles conservation in October 2009. Lynn recently completed her degree from the Textile Conservation Center program in Winchester, UK.

Maria Fusco began her Mellon Fellowship in textiles in December 2009. She completed her degree from the Winchester program in 2007.

Sculpture Conservation Studio just finished de-installing 2 monumental size sculptures with ArtWorks San Diego for the San Diego International Airport. The airport is about to add a new wing and needed the sculptures removed, washed, waxed, and stored for the next 2 to 3 years. **Andrea Morse** gave a talk at APT in November, 2009,

on the preservation of the Beverly Hills Unocal 76 Station. Sculpture Conservation Studio also removed all the oil based red and yellow paint the Trojans poured over the bronze Bruin Bear at UCLA right before the cross town rivalry football game.

Melissa Mariano and **Douglas MacLennan** have recently begun pre-program internships at the Fowler Museum at UCLA working under the guidance of **Jo Q. Hill**.

Dean Yoder from the Cleveland Museum of Art was a guest conservator in paintings conservation at the Getty last November, and he'll be returning to Los Angeles from time to time in the upcoming year to work closely with **Sue Ann Chui** on the treatment of a large panel by Savoldo from the Cleveland collection.

Colleen Snyder began an internship last September in antiquities conservation at the Getty, continuing through September 2010. While at the Getty Villa, she will be working on a variety of projects, including a number of Greek ceramics on loan. She is also enjoying living on the west coast for the very first time!

Decorative arts and sculpture conservation has been busy with the redesign and reinstallation of all of the sculpture galleries at the Getty Center. Four galleries in the museum's North Pavilion will open early in the spring of 2010, including the first permanent installation of the stained glass collection.

Julie Wolfe's article "Effects of Bulking Paraloid B-72 for Marble Fills" was recently published in the summer 2009 *AIC Journal*.

Graduate intern **Birgit Schwahn** of the Stuttgart graduate program in objects conservation, is currently working on a technical study of two Limoges painted enamel plaques. Each plaque contains exquisite fired enamel restorations set into the original compositions. She would be interested to know of any other examples of this type of repair in American museums.

Arlen Heginbotham and **Michael Schilling** (senior scientist at the GCI) presented a paper at the end of October for a conference at the Victoria and Albert Museum entitled "Crossing Borders: The Conservation, Science, and Material Culture of East Asian Lacquer." Their paper focused on collaborative research on Asian lacquer in the Getty Museum's decorative arts collections using layer-by-layer sampling in conjunction with py-GC/MS analysis. Their findings have led to new insights into the 17th-century trade of raw materials and lacquer across Asia and the world.

Arlen has also been organizing an international, 17-lab reproducibility study on quantitative analysis of historic copper alloys by XRF. The results of the study will be presented in the fall at Metal 2010 in Charleston, S.C.

At the Natural History Museum, **Tania Collas**, **Liz Homberger**, and senior consulting conservator **Claire Dean** are examining and treating objects slated for the exhibit *Under the Sun* (opening 2012) in a new visible conservation workspace within the museum's California History Hall. This space allows the conservators to work in-situ on objects such as the Los Angeles City Model, the Disney animation table, and the oil pump that are too large or too difficult to move to the normal conservation labs. Visitors will be able to see the conservators at work through windows in the partition and learn more about the conservation work in progress through interpretive signs. Currently, Claire is doing a remarkable impression of the 1950s B-movie *The Attack of the 50 Foot Woman* as she examines and documents the Los Angeles City Model from atop scaffolding.

Victoria Blyth Hill recently completed the treatment of a Nepalese "Genealogical Painting," dating from 1782 for the South and Southeast Asian department at LACMA. In December, Victoria served on the acquisitions committee for the Pacific Asia Museum in Pasadena, CA.

Chris Stavroudis has been busy. He released the newest version of the Modular Cleaning Program (MCP) in October (download it from http://cool.conservation-us.org/byauth/stavroudis/mcp/). In July, he was invited by **Gwendolyn Boevé-Jones** to present the workshop to private and institutional conservators in The Netherlands at Gwendolyn's studio in Wassenaar (near The Hague). In September at the invitation of **Kate Seymour** he presented the MCP in Maastricht in conjunction with SRAL (Stichting Restauratie Atelier Limburg). Later in the month, he led an MCP workshop organized by **Susan Blakeny** and assisted by **Nina Roth-Wells** in Skaneateles, NY. In February, he and **Tiarna Doherty** offered the workshop for the Getty Museum, GCI, and GRI conservators. Later in February he is scheduled to take the workshop down under to Melbourne.

Regional Reporter:
Virginia Rasmussen

HAWAII

In preparation for the reopening of the Bishop Museum Picture Gallery in the Hawaiian Hall (closed since 1940) **Rie** and **Larry Pace** of Pace Art Conservation, LLC treated paintings by 18th, 19th and early 20th-century Hawaii artists including Charles Furneaux, Ella Smith Corwine, D. Howard Hitchcock, Annie H. Parke, G. J. Denny, Joseph Strong, W. A. Coulter, and several paintings by unknown artists. Work is continuing on several additional paintings for showing in the gallery in 2010.

Pace Art Conservation staff is currently working on a number of panel and canvas paintings for an Old Masters exhibition scheduled to open at the Honolulu Academy of Art in 2011. The paintings are by a wide range of artists including Jan Leivens, Marc Antonio Franceschini, Jan Van Goyen, and Leonardo Coccorante. They recently had the opportunity to work on paintings of Hawaiian scenes by Lionel Walden and Shirley Russell being lent to

Senator Daniel Inouye for display in his offices in Washington, DC.

Makiko Watanabe joined Pace Art Conservation from September 2008 through February 2009. Makiko was awarded a scholarship from the Japanese Agency for Cultural Affairs to study painting conservation in the United States for one year. After six months in Hawaii she moved to New York to work in the Rustin Levinson Studio.

This past June Larry gave a presentation about art conservation and artists' materials to the Atelier students at the University of Hawaii, Windward Community College. This is a six-week immersion program that provides local artists and art students with invaluable experience with classical and traditional training. This was the fifth year he has spoken to the group.

With travels and conservation projects scattered across the world, **Dawne Steele Pullman** does manage to keep returning to the Hawaiian Islands for her private clients as well as some of the museums. This past year she treated Chinese contemporary paintings in Hong Kong. While condition reporting several paintings at the Sotheby's auctions, she came across paintings she had worked on when residing in Singapore back in 2004 - the ever revolving Asian art market! After last year's WAAC meeting in Alaska Dawne volunteered her services to the Sitka Historical Society and got to see more of that beautiful state.

Thor Minnick recently completed treatment of an early kou umeke and six fine kapa beaters. Other interesting projects that came through his studio were the partial re-gilding of a Childe Hassam frame and extensive treatment to a slant-top secretary desk belonging to Israel Putnam. Thor is looking forward to future projects that may include treatment of a pair of Chinese made Sully style gilt picture frames for the Bishop Museum, and fabrication of a stable mount for a late Song to Yuan Dynasty Bodhisattva Guanyin for the University of Hawaii at Manoa's Jean Charlot Collection.

Gregory Thomas of Art Care has continued to provide painting conservation in Hawaii and on the mainland. Most recently Gregory completed four acrylic on canvas murals for the State of Hawaii that were hung at the Honolulu Airport. Two of the paintings were by Pegge Hopper and two were by Jerry Okimoto. Stains were removed by Greg from a oil painting on a canvas for the Honolulu Mayor's Office on Culture and the Arts. Gregory also has continued to help Anne Rosenthal on her mural conservation project at the former Maritime Museum for the National Park Service.

Regional Reporter:
Dawne Steele Pullman

NEW MEXICO

As 2009 winds down, **Joe Sembrat** and Conservation Solutions, Inc. (CSI) are pleased to be looking forward to a busy start to 2010. CSI was awarded a Department of Veterans Affairs contract for the conservation of the Union Soldier's Monument at the Knoxville National Cemetery in Knoxville, Tennessee. Other projects that have kept them busy this fall include the restoration of the Bronze Entrance Doors at the Bethesda Naval Medical Academy; the survey, research, and preparation of Contract Documents for six buildings located at historic Fort Belvoir in Virginia; and the treatment of the portico capitals at the Baltimore City Hall.

Their two year contract with Vizcaya Museum and Gardens in Miami, Florida is finally underway with the repair and conservation of sculptures and fountains located in the Marine Garden. Also on the agenda for 2010 is the conservation of another copper repousé Lady Justice sculpture located at the Augusta Municipal Building in Augusta, Georgia.

The conservation department of the Department of Cultural Affairs and the New Mexico Association of Museums received a Connecting to Collections planning grant. As part of that grant, **Bettina Raphael** and **Jo Anne Martinez Kilgore** offered six free workshops around New Mexico to inform the state's museums about the Heritage Health Index and the New Mexico Connecting to Collections survey of the health of local museum collections.

Regional Reporter:
M. Susan Barger, PhD

PACIFIC NORTHWEST

Miriam Clavir was invited to the Salzburg Global Seminar, "Connecting to the World's Collections: Making the Case for the Conservation and Preservation of our Cultural Heritage," Oct. 28 - Nov. 1 2009, in Salzburg, Austria. This international session was co-hosted by the Institute for Museum and Library Services (IMLS) and addressed the sustainability of cultural heritage. It produced a consensus declaration on the conservation and preservation of cultural heritage which can be viewed on the IMLS website. In addition, the SGS has made available podcasts of many of the conservators' talks. The talks can be downloaded from the SGS homepage.

The Royal BC Museum was privileged during the fall of 2009 to host **Jaclynn Bacon**, a Sir Sandford Fleming College intern interested in objects conservation. Jaclynn was kept very busy on a number of loans and exhibits as well as research into the deterioration of plastic milk tokens and a presentation to the Pacific Conservation Group on the topic of Micromesh abrasives.

Jana Stefan and **Carly Wemyss**, former Fleming interns, have both been working at the RBCM. Jana in a full time position in the exhibitions department and Carly working temporarily in the Archives preparing documents for scanning. We are also privileged to have

Sharon Koehler working with us temporarily. Sharon is a private ceramics conservator from Virginia who is currently living in Victoria.

Last fall **Colleen Wilson** attended the NATCC conference and workshops in Quebec City, and **George Field** participated in and cooked for the CCI workshop on totem pole conservation in Alert Bay, BC. **Lisa Bengston** switched to the night shift recently, cleaning construction debris that had inadvertently found its way into display cases in the First Peoples gallery.

Robert Davison and **Betty Walsh** have been crunching numbers for the final specs on a cold storage facility for the archives and museum deteriorating plastics collections. And **Kjerstin Mackie** has been cracking the whip over contributors to a publication on the Kwäday Dan Ts'ìnchi research. **Kasey Brewer** is gearing up for an update on the 2005 Collections Risk Assessment, planned for mid-2010. They are all looking forward to a slightly more relaxed new year.

Dana Senge and pre-program intern **Megan Salazar-Walsh** continue to work with the collections at the Hibulb Cultural Center in Tulalip, WA. They have been cleaning, consolidating, and stabilizing cedar pieces carved by William Shelton.

The conservation staff of the Vancouver Archives is working on the second development phase of an open-source digital archives system, which includes preservation planning and actions.

For the first time this past November, the Archives held a screening of archival films in a large, modern, single-screen theatre, and, to their astonishment, set a box office record, turning away a queue down the block. As an introduction, they discussed the preservation challenges they faced in bringing the films to the screen as DigiBeta copies. It was great to hear the attendees' appreciation for both the films and the background information. They'll definitely do this again!

Seattle Art Museum associate conservator **Liz Brown** has been working with colleagues in Florence to study an important sculpture by Massimiliano Soldani Benzi from SAM's Samuel H. Kress Collection.

Nicholas Dorman oversaw condition checking and transport of the *Luminous Jewels* exhibition of 100 works of art from SAM's Asian holdings. The show is on the road in Japan until July 2010, and the SAM conservation team is working with Japanese colleagues to study specific works from the collection during the tour.

Conservation intern **Linda Lin**, from the Getty/UCLA Conservation program, has been treating and studying objects from the collection for exhibition and loan, including Cameroonian masks and a Qing Period miniature screen.

Nick and **Marta Pinto-Llorca** have been preparing for a comprehensive survey of SAM's Chinese paintings collection with conservator **Kewei Wang** of the University of Michigan Museum of Art. The technical and condition survey will form part of a Getty Foundation-funded on-line catalog for this collection.

Regional Reporter:
Dana Senge

ROCKY MOUNTAIN REGION

In July **Allison Holcomb** left the Buffalo Bill Historical Center to enter the Winterthur/University of Delaware Program in Art Conservation. **Rachel Wilson** from the University of Kentucky was in residence as a conservation intern throughout the summer.

Jennifer McGlinchey, third year paper conservator from the Buffalo State College program spent two weeks conserving photos, archives, and works of art on paper for the BBHC. **Christina Simms** spent the summer as a conservation intern and then moved into the IMLS Connecting to Collections project manager and volunteer conservation technician position, heading the outdoor sculpture maintenance program for the BBHC. **Hannah Mancill**, **Tera Griffin**, and **Tessa Lisowe** successfully completed their summer internships at the BBHC. **Nathan Haines-Walsh** and **Jamie Weaver** were also interns in the conservation lab.

Jodie Utter, conservator of works on paper from the Amon Carter Museum, spent two weeks in residence researching watercolors by Charles M. Russell.

Beverly Perkins completed a CAP survey for the Schoolhouse History and Art Center in Colstrip, Montana and an in-house training week for the staff of the Jackson Hole Historical Society and Museum. Bev traveled the state of Wyoming, leading IMLS statewide planning symposia in Cody, Casper, Sheridan, Rock Springs, and Cheyenne. She is working with the Colorado Wyoming Association of Museums to address the needs discussed in the Wyoming Connecting to Collections symposia. She attended the annual Heritage Preservation meeting in Washington, DC.

Aaron Burgess is the new pre-program intern at Denver Art Museum. Aaron came on board in September and is a conscientious and enthusiastic addition to the conservation department. **Tara Hornung** continues her Kress Fellowship at DAM. She will soon begin examination of select works from the Kress Foundation collection of paintings using IR and X-ray. The findings will be part of a forthcoming museum publication. In addition, Tara continues to work on two large circa 17th-century Spanish Colonial candlestands, analyzing their surface composition and improving their structural integrity.

In preparation of a complete reinstallation of the American Indian galleries at DAM, **Gina Laurin** and Tara are treating a broad scope of artifacts that range in date, origin, and media. **Steve Osborne** continues to create mounts and resolve a variety of installation issues

related to conservation. Most recently, his skills were successfully tested for the *Embrace!* exhibit currently on view at DAM.

Cynthia Lawrence has been working on contract at DAM, treating paintings. Of note is her treatment of the 17th-century Spanish Colonial painting, *Apparition of Saint Michael on Mount Gargano*, by Sebastien Lopez de Arteaga. As part of an IMLS-funded storage improvement project, Cynthia, Steve, and Aaron have been hard at work upgrading hardware and backings of paintings for their eventual storage on new rolling screens.

Through funding from the Hughes Trust, **Mark Minor** has been treating an elaborate 18th-century Boulle marquetry desk, comprised of sea turtle shell, wood, and brass. Mark also just completed treatment of another piece of marquetry – an 18th-century Ecuadoran lap desk made from various types of wood. The lap desk will be featured in an upcoming museum publication.

In April 2009, **Sarah Melching** was appointed Director of Conservation at DAM. She also continues to address the needs of the works on paper and photography collections.

Carl Patterson and Asian Art Curator Emeritus **Mary Lanius** traveled through the Orissa and Bastar regions of India recently to study dhokra bronzes. The trip included interviewing artists, collecting samples for research, visiting Indian conservation labs, and documenting dhokra production methods. Of special interest were techniques of deliberate and use-related patination that might effect conservation treatments. The project was made possible through funding from the Gabo and Mellon Foundations.

Laura Downey Staneff is leaving her private practice, Silverpoint Art Conservation LLC. From January 2010, Silverpoint will be solely owned and operated by **Camille Moore**.

Victoria Montana Ryan recently completed work on an eight mural cycle, *The History of Navigation*, by artist Eric Bransby now in the exhibit *NASA: 50 Years of Exploration*. The exhibit, organized by SITES and coordinated with the Smithsonian National Air and Space Museum, is currently on view at the Colorado Springs Fine Arts Center through March 7, 2010.

Regional Reporter:
Paulette Reading

SAN DIEGO

Regional Reporter:
Frances Pritchett

SAN FRANCISCO BAY AREA

Things have been pretty quiet at the Asian Art Museum of San Francisco following the opening of *Emerald Cities: Arts of Siam and Burma*. There have been many mentions of the extensive conservation involved in preparing for the exhibition on Youtube, iTunes University, and the museum's blog. Indeed, a continuously running video (for sale in the museum store) highlights some of the work involved and has turned many of the staff into celebrities: **Mark Fenn**, **Katie Holbrow**, and **Shiho Sasaki**. For those of you who cannot make it to the museum to view the exhibition, you can still read about the many hours of preparation required at the museum's website.

Margaret (Meg) Geiss-Mooney, textile/costume conservator in private practice, gave two lectures on costume storage at the Phoenix Art Museum in October.

Conservators at the Oakland Museum of California are preparing for the museum's reopening in May, 2010: **Julie Trosper** is working on three-dimensional objects, ranging chronologically from 16th-century navigational devices to Obama campaign playing cards; **Pam Skiles** has been working on cleaning and preparing numerous 19th and 20th-C. paintings; and **Peng-Peng Wang** has been working on works on paper ranging from an 1886 Jules Tavernier pastel to a Frank Ghery cardboard chair, all for reinstallation in both the art and history galleries.

John Burke has been working on outdoor sculpture, museum lighting/HVAC, and exhibit microenvironments. The staff has also just completed an IMLS grant to re-house the Native American Basket collection, and a Luce Foundation grant for treatment of important paintings in the art department. Work on an IMLS grant for re-housing the museum's costume and textile collection is ongoing. And, after teaching at the Tainan National University of the Arts, and the National Palace Museum in Taiwan for the past 3 years, John Burke recently published two articles on Cohesion Parameter Theory and Anoxic Fumigation in *The National Palace Museum Research Quarterly* (Volume 27, 2009).

FAIC just received a grant from the Kress Foundation for **Tim Vitale** and **Dawn Heller** to prepare class materials for a 4-day workshop on digital imaging for conservators. The 4-day workshop will be given in the University of Delaware Continuing Education 20-seat "just completed" computer laboratory (and classrooms) in Wilmington, DE in April. Applications to the AIC for tuition support (estimate to be $900) will be accepted through the end of February; registration will remain open until filled, up to 25 participants.

Participants can bring any professional-grade of semi-profession camera (even P-n-S, such as Canon G7- G-11, Panasonic lumix LX1 - LX3) and be assured they will leaving knowing how to get the best results, save files in an archival manner, apply metadata, manipulate images for presentation, and make better conservation documentation images. Participant will be required to read (in advance) the recent AIC publication *The AIC Guide to Digital Photography and Conservation Documentation* (2008) ; the goal being to develop a knowledge base and common vocabulary for a better educational outcome. For information on registration, please call: (302)831-1171. A website will be available mid-January.

Regional Reporter:
Beth Szuhay

TEXAS

In October, **Sylvie Pénichon**, conservator of photographs at the Amon Carter Museum, Fort Worth, Texas taught a 2-day workshop on identification and care of color photographs to the graduate students of the conservation program at the Tainan National University of the Arts, Taiwan. She also presented a paper "Collecting Contemporary Photographs: Trends and Challenges" at the International Academic Seminar "Retrospect and Prospect: Conservation of Cultural Relics," hosted by National Taiwan Museum, in Taipei, Taiwan.

Jodie Utter, conservator of works on paper at the Amon Carter Museum continues her technical study for *Romance Maker: The Watercolors of Charles Russell,* an exhibition slated for 2012. Her study will be published in the accompanying exhibition catalogue. As part of the project she is studying Russell's technique and materials through traditional examination, polarized light microscopy, infrared reflectography and X-ray fluorescence. She has been, able to sample Russell's watercolor paint tins from several collections, his paintings, as well as contemporary historic pigments for comparison purposes in an effort to indentify the pigments he used throughout his career.

In addition, she is serving as the program chair for this year's AIC Book and Paper Group to be held in Milwaukee. The program is finished, and the meeting brochure was mailed out in January. The talks cover a variety of topics and should be very interesting.

Membership

Chris Stavroudis
membership secretary

WAAC welcomes the following new members and late renewals.
Contact information is printed in the 2009 WAAC Membership Directory and the new members are listed here by name only.

Katherine Ara
Art Conservation B.V. (J. C. Stokmans)
Maria Charette
Daniel Heath Cull
Michele Austin Dennehy
Megan Flagg
Catalina Hernandez
Seth Irwin
Dawn Jaros
Zachary R. Jones
Ernie Mack
Douglas MacLennan
Jennifer McGlinchey
Valery Monahan
Museum of Fine Arts, Houston
Nina Marta Olsson
Christina Simms
Marcin Szymczykowski
and Anne Turner Gunnison.

Alex Bero and **Kathryn Blackburn**, both second year book conservation students at the University of Texas at Austin, and **Lauren Morales**, a private Austin paper conservator, volunteer their time in exchange for training with **Stephanie Watkins** in paper conservation at the Harry Ransom Center at the U. of Texas at Austin. This semester they continue "unsticking" many adhered papers and working on large circus and theatre advertising posters destined to be digitized. UT senior, **Desi Peters**, who treated a circus poster in paper conservation last semester, is working this semester on the "Landmarks Preservation Guild" project supervised by objects conservator, **Catherine Williams**. Under Catherine's supervision, students examine and maintain modern outdoor sculptures dispersed throughout the UT campus.

Regional Reporter:
Ken Grant

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: $8.85
($6.60 copy for orders >10 copies)

Back Issues of WAAC Newsletter

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

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

For information please contact the WAAC Secretary:

tkmoreno@u.arizona.edu

Send prepaid orders to:

Donna Williams

On Again, Off Again: Conservation Aspects in Accessible Display Case Design

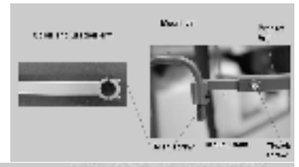
by Michele Austin Dennehy and Kim Cullen Cobb

The National Museum of Natural History (NMNH) and the National Museum of the American Indian (NMAI) are in the final stretch of a three year collaboration with the Anchorage Museum at Rasmuson Center to create an Alaska Native cultural exhibition. The project, developed in conjunction with the Smithsonian's Arctic Studies Center is intended to provide an unprecedented level of access and interaction between Smithsonian collections and indigenous source communities. The gallery, located in the new wing of the Anchorage Museum, will include both exhibition and research spaces. Floor-to-ceiling glass cases will display almost 600 Alaska Native heritage objects from the Smithsonian collections, and at the same time be available for hands-on examination and discussion by Alaska Native elders, artists, and scholars.

Smithsonian conservators have been working to ensure the long-term preservation of these objects, while simultaneously facilitating the access requirement of the loan. Meeting conservation criteria to allow objects to be safely removed from exhibit for study has been an ongoing process, which has included working closely with exhibition designers, curators, fabricators, and mountmakers. Conservators have also addressed the conservation concerns of display cases utilizing a tensioned rod system to support fragile objects in an active seismic environment and the design of object mounts that properly support objects inside the display case; allowing the objects to be visually accessible for study; and serve as a means of conveyance to bring objects from exhibit cases to the study center. This paper summarizes the conservation challenges of working with a unique exhibition case design in which objects will be routinely removed from exhibition for study and museum programs.

The newly completed expansion wing of the AM holds the 10,000 sq ft Arctic Studies Center Gallery and adjacent rooms and spaces for the objects to be brought to for study. Ten Alaskan cultural groups are represented in the ASC gallery's seven community cases. The objects are grouped within each case by the three major themes of home and community; land, seas and rivers; and ceremony and celebration. The objects are placed at "use" level with boots on the floor level deck, hats at head height, etc. In addition, there is a large thematic case with cross cultural groupings of objects types including boat models, baskets, pipes, goggles, and masks. The massive floor to ceiling community cases are double sided metal construction tied into the gallery floor and ceiling, with floor to ceiling glass panels. The large glass panels of the cases are also the case doors and open with actuators; the doors slide laterally to allow access to the case interiors.

Objects are displayed in these cases cantilevered from steel rods with attached hardware designed to allow objects to be removed for study and re-installed for exhibition multiple times over the length of the twelve year loan. This case hardware consists of spring tensioned vertical steel rods attached to the ceiling and screwed into the deck, all engineered to meet seismic requirements. Attached at a 90 degree vertical angle to the steel rods are collared, hollow steel bracket arms. The collars of the bracket arms are tightened on the vertical rods with Allen screws and can be infinitely adjusted along the vertical rods. Steel mount stems attached to the object mount slide into the bracket arms and are secured with thumb screws. Both the bracket arms and mount stems are square stock to prevent any rotation of the mounted object. Object mounts are primarily fabricated from brass with a pin extending from the back that drops into a hole in the mount stem. This pin is tightened to the mount stem with a small screw. If required the mounted object can be removed from the system via the pin. The pin also allows some adjustment of the object position in the case.



Details of case hardware and object removal from exhibition case: via mount pin, below left, and via mount stem/thumb screw, below right.

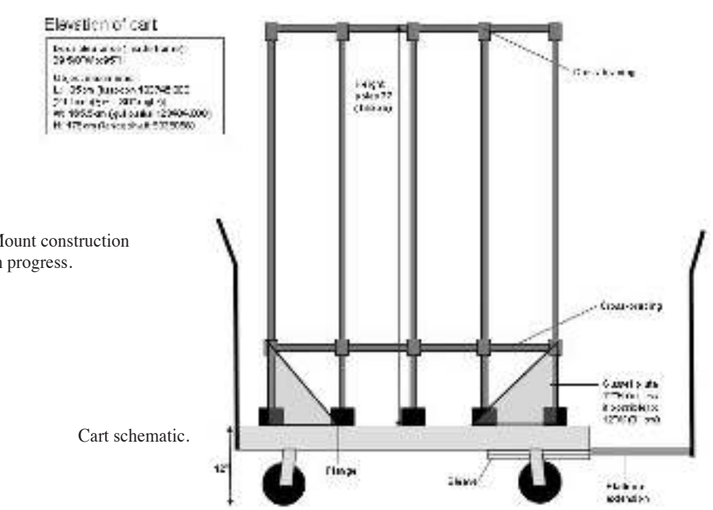
For study, objects are transferred from the case to carts. The object remains in its mount and is detached from the bracket arm via the mount stem. To remove an object the thumb screw on the bracket arm is loosened and the mounted object and attached mount stem slides out as one assembly. Carts, constructed with the same case hardware, have bracket arms to receive the mount stems of the objects. Each cart is designed to hold multiple objects depending on their size. Carts will be moved to a consultation room or an area in the gallery designed for groups such as school children. The access plan is designed so most objects will remain on the carts for study.

The exhibit case design, mounting system, and handling requirements posed new challenges for the project conservators. Initially it was necessary to evaluate whether the selected objects could endure being on display for an extended period, coupled with the stress of additional handling during access for study. When conservators were first asked to review the design for object access, we realized that mount fabrication would be the most complex part of the project. The factors of the exhibit design of vertical rods, the access component, and the fact that Anchorage is in an earthquake zone necessitated complex mounts. The mountmakers had to create mounts to allow the objects to hang suspended from vertical rods, meet seismic criteria, protect vulnerable parts, hold the object immobile when handled, and serve as a means of conveyance from case to cart and back. Finally, the mountmakers were asked to make a mount that allowed maximum visibility for study such as the backs of masks and interiors of baskets. This was no small task.

The objects chosen for this loan are primarily ethnographic and are made from a wide variety of mostly organic materials including soft woods and other easily marred object types. They are also often constructed with many protruding and dangling parts and are difficult to mount for a standard display. In addition, even after conservation some of these objects remain inherently weak, and the mountmakers were asked to make supportive mounts for these objects. This type of mounting required extensive object handling by the mountmakers who were creating very extensive brass mounts to meet the design requirements. This type of intrusive cage-like mount is not the normal approach of the mount-maker who works to make mounts minimal and invisible. In addition, there was a balance of tightening the brass clips to make the object immobile while at the same time not pressing into or marring soft or friable surfaces.

The exhibition mounting system was new to both the conservators and mountmakers. There was a learning curve for both groups and some frustration early on until conservators could clearly articulate the mounting requirements. For example we asked that objects be locked on their mounts. To mountmakers this meant they could not be removed while to conservators this meant that they could not be removed and also could

Mount construction in progress.



Cart schematic.

not twist or rotate when handled. Good communication between conservators from two museums, mountmakers, and curators was critical to the success of this project.

Because of the complexity of the design and the untried access component, a full scale wooden mockup of a community case was built at SI's Museum Support Center. This mockup was critical for mount making to test the mounts on an untried vertical rod system. Having full-sized case mockups also allowed the team to confirm object placement in the cases, hopefully eliminating adjustments during install. We could determine if the spacing between objects allowed safe access for removal and also determine the object removal sequence, in other words, what other objects needed to be removed to safely access the target object. We were also able to address any vibration issues and minimize them.

Also, in the early designs the objects that were high up in the case were placed further back in the cases to provide lighting for objects below. Conservators worked with the designer to move the upper objects placed at 7 feet and above forward as much as possible by lengthening the bracket arm to provide safe removal without having to remove the objects below. All of the case positioning became a balancing act because lengthening the bracket arm introduced more vibration in the system but allowed easier and safer access to the object.

Case density was carefully reviewed. A safe working distance between objects for removal is required as removal entailed reaching behind the object, with a small tethered screwdriver to loosen the cylindrical slotted thumb screw on the bracket arm. In the end, for various reasons, enough objects were dropped from the loan to provide the needed distance between objects. For seismic movement the engineers asked for 2 inches between objects but we found about 4 or 5 inches between objects allowed us to reach back to access the thumb screw and release the mount stem.

A significant concern was vibrations in the vertical rods. These vibrations occurred when accessing objects in the cases. Vibration was minimized by additional hardware to tie the vertical rods together and by simply grasping the vertical rod during object handling. The team also worked to keep the distance between the mounted object and vertical rod as short as possible to reduce vibration. Mountmakers also used heavier, stiffer brass stock when making the object mount to reduce any bounce.

Large and long objects such as harpoons often require multiple mount attachments for stable mounting. Multiple mount stems require exacting bracket arm spacing and a more complicated object removal and re-installation. Aligning the mount at two points, while sometimes working blind, proved challenging for some objects, and there is a learning curve for managing the install and de-install to prevent locking while moving the mount stems into the bracket arms in unison.

There were some modifications to the primary mounting system. While the design initially did not include Plexiglas as a mounting component we found that in some cases additional support was needed to provide safe conveyance. We had a large group of boat models constructed of fragile materials such as birchbark and stretched skin, often with projecting paddles. Plexiglas platforms provided the least visible and most protective alternative, allowing removal without handling the object. While these were not part of the original design concept they became a standard component for mounting this exhibit.

Large flat textiles were mounted onto support boards. In a few cases, because of limited access to the thumb screw, a modification of the mounting system allows the support board to be removed from a metal frame that remains in the case while the textile travels flat on a cart for study.

Limited access at the ends of cases, which do not open, restricts access to objects placed at the ends, and some large objects such as snowshoes need staff on both sides of the double sized case to de-install. Some very large or complex objects will not be removed from the cases because of the difficulty of access. Also, some objects such as a rabbit fur garment that actively sheds are not good candidates for removal and will remain in the case. Because some objects will not be removed, care needed to be taken to confirm that the surrounding objects could be maneuvered safely around the fixed object.

There were many practical considerations that became apparent during this process. Install and de-install would be a group effort. It was quickly realized that the steel case components especially the projecting bracket arms present some danger. This confirmed the need for a spotter to ensure the person working in the case does not harm themselves or an object with a careless elbow. Other considerations include possible surface damage of mounts during repeated handling including scratching the Plexiglas and paint of the brass mount and leaving fingerprints on the Plexiglas and show fabric used on some mounts.

As this system is new, all parties will learn along the way. The success of the access component is yet to be determined because it is a new endeavor. The cart system will hopefully allow a high level of access needed for study, cultural consultation, and education while at the same time offering protection for fragile artifacts.

This exhibition has relied very heavily on the expertise and ingenuity of the mount making team, and the conservators extend their thanks to the mountmakers for their patience and hard work.

UV-Blocking Window Films for Use in Museums—Revisited

by Colleen Boye, Frank Preusser, and Terry Schaeffer

Introduction

In naturally lit galleries, the radiation that constitutes daylight can present a hazard to many of the materials found in art and archival collections. Ultraviolet (UV) radiation, in particular, is invisible to the human eye but can fade colorants and damage fibers and polymers. Therefore, institutions generally use window films to block unwanted solar radiation.

Film suppliers have continually expanded their offerings and updated film technology to meet increased demand from commercial, residential, and automotive customers. However, the needs of museums have not been addressed specifically during this expansion of the range of window film products. Museum staff must determine the efficacy of individual films and select those that best meet their requirements for completely blocking UV and reducing visible light to the desired level without altering color values. To this end, the conservation community has been evaluating UV-blocking window films for more than two decades (1-5). They have had a variety of goals and thus have used different types of measurements and performance criteria.

Evaluation of UV-blocking window films has been revisited recently in a survey of the UV and visible light transmitting properties of products from several suppliers (6). After presenting a useful summary of film composition and structure, the author tested the UV transmission of the unmounted film samples without adhesive. A UV meter with response optimized for UVB radiation (280-320 nm) was employed in this initial evaluation. Several films were rejected on the basis of these results. In the second part of the investigation, the transmissions of the remaining films were characterized by absorption spectrophotometry.

After some consideration and discussion of the methodology and results reported, we found that we questioned the appropriateness of some of aspects of the author's initial evaluation process, for the following reasons: in actual use the films are always applied to glass, which absorbs most UVB radiation; the test did not accurately measure transmission of UVA (320-400 nm), which has been shown to damage many materials; adhesives contribute to the performance of some films; and the mixed light sources present during this test were not representative of daylight. Also, absorption spectra have low precision when the absorption level is high, making the spectra difficult to interpret in the particular wavelength regions of interest.

Several 3M films were rejected by the preliminary study. If this were accurate, it would be cause for concern, as 3M products have frequently been used by the museum community for their UV blocking properties. Because of our reservations we undertook our own study using a calibrated light source and UV-visible transmission spectrophotometry. We included several films from 3M and other manufacturers that were tested in the previous study, as well as some new films. All the window films tested incorporated adhesive and were tested both on and off window glass. In this first part of our investigation, transmission spectra of all the samples were obtained and the data used to characterize the UV rejection and color neutrality of the films. The ageing behavior of the films will be examined in a second study.

Film Selection

As it was not the purpose of this study to be comprehensive, we tested only films for which we could readily obtain samples, surveying the different product lines available. We selected samples with high and low visible transmission from each line.

Experimental Procedure

Film Preparation

UV-visible spectra of the films, both unmounted and mounted on window glass, were obtained as follows.

Three samples of each window film were cut to fit into a 1 cm cuvette holder. The samples were cleaned of dust and fingerprints with a Kimwipe and the backing removed. The film samples were placed in the cuvette holder with the adhesive side towards the light source. Transmission was measured at three different locations on each of the triplicate samples.

The films were also mounted to blanks of 1/16" window glass cut to fit into the cuvette holder (figure 1). Three samples of each film were cut slightly larger than the glass blanks, the backing removed, and the film placed adhesive side up on a clean surface. The glass blanks were rinsed with a dilute solution of approximately 0.1 mL semisolid sodium dodecyl sulfate/1 L distilled water and placed while still wet on the film samples, which were trimmed. Bubbles between the film and the glass were removed by rolling the shaft of a fluoropolymer policeman repeatedly over the sample. The samples were allowed to dry for at least one hour (some sources recommend allowing at least one week for films applied to windows to dry (3), but tests showed that, at this small scale, there were no significant spectral differences between films allowed to dry for one hour and films allowed to dry for as long as one month). Transmission was measured at three different locations on each of the triplicate samples. The glass was oriented towards the light source.

Figure 1. Film samples mounted on glass

Transmission Spectroscopy

The transmission properties of the films were evaluated using an OceanOptics DT 1000 CE UV/Vis light source and an OceanOptics ADC1000-USB detector calibrated in the 200-850 nm range. An OceanOptics 1 cm cuvette holder was positioned horizontally with the light path pointing downwards so that films with no backing could lie horizontally and normal to the light path, with the adhesive side up (figure 2).

Figure 2. Fiber optic cell

The spectrometer was calibrated to 100% transmission with the cuvette holder empty. A zero light calibration was also performed for every spectroscopy session. Transmission spectra of the films were referenced to air. A new air background was taken between every film sample. Transmission was recorded approximately every 0.3 nm between 200 to 800 nm, integrating over 4 ms and averaging 100 scans. Percent transmission was measured to facilitate direct comparison of the data to the manufacturer's specifications. This approach also precludes the need to perform mathematical operations on the very small signals obtained in the UV range and the resulting uncertainties in the data.

Data Reduction

The three spectra obtained for each sample were averaged and the approximate total area under the averaged curve from 300-400 nm obtained by taking a Riemann sum. This sum was divided by the total possible transmission over that range (100% x 100 nm) to obtain the percent transmission in the near ultraviolet range, which was converted to percent rejection for comparison to manufacturers' values. The same calculation was performed over the 400-700 nm range to obtain the percent visible light transmitted. The values obtained from the three different samples of each film type were averaged to obtain a final UV percent rejected and visible percent transmitted, and standard deviations were calculated.

To evaluate the steepness of the UV cutoff, a linear regression was fit to the curve. The midpoint of the cutoff region of the transmission curve was approximated by defining the lower and upper endpoints as the wavelengths where the extension of the linear regression line crossed the abscissa and the film's average visible transmission (figure 3).

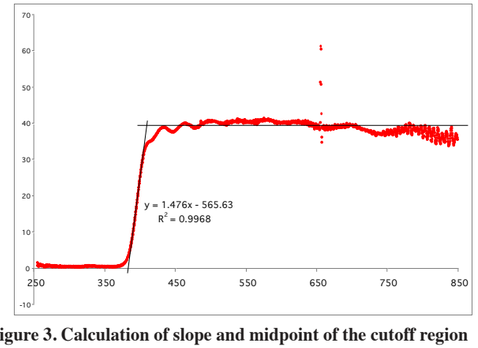


Figure 3. Calculation of slope and midpoint of the cutoff region

Color neutrality is an important factor for films to be used on museum windows. Color neutrality was evaluated in two ways. First, approximate CIE L*a*b* values were calculated from the averaged visible spectra of the three samples of each film not mounted to glass. Second, to characterize the extent to which the films removed blue and red light, the percent transmission at maximum eye sensitivity in the green at 550 nm was compared to the values at 425 nm in the blue and 675 nm in the red.

Results and Discussion

Figures 4-7 show spectra of several window films on glass. These curves are representative of the range of spectra obtained for all the films tested. All block the vast majority of radiation below 380 nm, but the visible transmission, the shape and location of the curve between 380 and 400 nm, and the shape of the curve in the visible range are all highly variable. The spike just above 650 nm is a machine artifact. An ideal spectrum would be as close to vertical as possible at 400 nm in order to cut out all the UV, and then as close to horizontal as possible afterwards in order to have a neutral color (a slight yellow tint is also considered acceptable). Most of the spectra show ringing, which is clearly visible in the Cold Steel 50. This is caused by light passing through films composed of multiple layers with different refractive indices. Additionally, it is clear that the transmission spectra of the films are far from the ideal of vertical at 400 nm and horizontal thereafter. The steepness of the cutoff curve

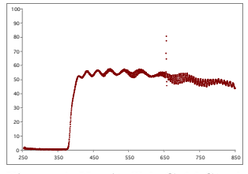


Figure 4. HanitaTek Cold Steel 50

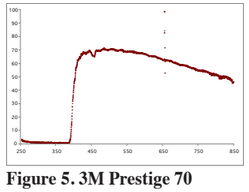


Figure 5. 3M Prestige 70

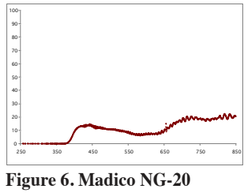


Figure 6. Madico NG-20

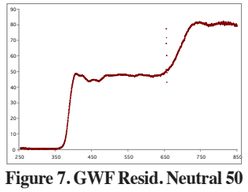


Figure 7. GWF Resid. Neutral 50

can be misleading: one might immediately reject the NG-20 because of its gradual slope between 380 and 400 nm, but due to its overall low transmittance, it has the highest total UV rejection of any film tested. The Cold Steel 50 is neutral colored, but the transmission of the Prestige 70 drops off at high wavelengths so that it appears cyan. The transmission of the NG-20, in contrast, is highest in the low and high wavelengths, but dips in the middle wavelengths and consequently appears violet. Most of the films, particularly the Prestige 70, appear to reduce IR as well as UV and visible light. In contrast, the Residential Neutral 50, like many of the Global Window Films samples, shows a sharp increase in transmittance in the near IR, giving a slightly reddish tint to an otherwise neutral-colored film.

The calculated percent of UV rejected and percent of visible light transmitted for each film are shown in table 1, where they are compared with the manufacturers' values. The data obtained for films on glass are listed; values obtained for unmounted films were usually within 1% of the values for the films on glass. It should be noted that the disparity between

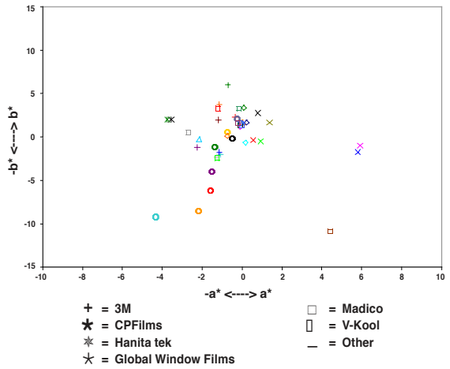
Table 1. Spectral Properties of Various Window Films on Glass

Film	UV Rejection	UV Rejection (Manufacturer's Data)	Visible Transmission	Visible Transmission (Manufacturer's Data)
Window Glass	41.3%	NA	90.2%	NA
3M Night Vision 15	98.6%	99.0%	17.8%	15.0%
3M Night Vision 35	97.2%	99.0%	39.2%	35.0%
3M Prestige 40	98.5%	99.9%	8.9%	39.0%
3M Prestige 50	98.3%	99.9%	47.1%	50.0%
3M Prestige 70	97.3%	99.9%	66.3%	69.0%
3M Ultra Prestige 70	98.4%	99.9%	65.4%	67.0%
3M Neutral 20	98.8%	99.0%	14.7%	16.0%
3M Neutral 35	97.2%	99.0%	35.4%	37.0%
Artscape Energy Film	85.7%	97.0%	79.6%	77.0%
Llumar N1020 SR CDF	97.8%	99.0%	23.1%	24.0%
Llumar N1065 SR CDF	94.9%	99.0%	67.5%	71.0%
Llumar NUV65 SR PS4	98.0%	99.9%	70.1%	63.0%
Llumar UVCL SR PS	97.2%	99.9%	85.9%	88.0%
Vista Soft Horizons V33	98.2%	99.9%	34.0%	33.0%
GAM Color Cinefilter 1810	95.5%	97.0%	82.8%	90.0%
GWF Delta Dual Reflective 25	95.9%	98.0%	28.8%	12.0%
GWF Delta Dual Reflective 45	94.4%	98.0%	41.1%	42.0%
GWF Glare Cut NR 35	94.7%	98.0%	35.5%	35.0%
GWF Glare Cut NR 70	92.6%	98.0%	69.0%	72.0%
GWF Residential Neutral 20	97.7%	98.0%	22.1%	20.0%
GWF Residential Neutral 50	93.2%	98.0%	48.6%	50.0%
HanitaTek Cold Steel 20	96.9%	99.0%	24.2%	19.0%
HanitaTek Cold Steel 50	93.8%	99.0%	54.2%	47.0%
HanitaTek Cold Steel 70	97.2%	99.0%	67.1%	66.0%
HanitaTek Optitune 15	99.0%	99.0%	12.4%	12.0%
HanitaTek Optitune 30	94.6%	99.0%	40.6%	31.0%
HanitaTek Optitune 55	92.8%	99.0%	59.8%	53.0%
HanitaTek Silver 35	94.6%	99.0%	34.9%	31.0%
HanitaTek Silver 70	91.8%	95.0%	51.3%	46.0%
HanitaTek UV Filter Film	97.9%	99.8%	81.3%	87.0%
Madico Advanced Ceramic 3000	97.3%	99.0%	36.4%	33.0%
Madico Advanced Ceramic 6000	95.0%	99.0%	61.5%	61.0%
Madico CLS-200-X	98.5%	99.0%	79.1%	77.0%
Madico CL-200-XSR	94.2%	99.0%	87.4%	85.0%
Madico CL-200-X	94.5%	99.0%	85.5%	85.0%
Madico NG-20	99.2%	99.0%	10.8%	13.0%
Madico Sunscape Satin 550	95.0%	99.0%	54.7%	50.0%
Madico TSG-335	98.7%	99.0%	42.2%	40.0%
V-Kool VK40	98.2%	99.0%	39.4%	43.0%
V-Kool VK70	97.1%	99.0%	62.2%	70.0%

the measured values of UV rejection and the manufacturers' claims do not mean that the latter are erroneous. The industry defines the near UV region at 300-380 nm for their specifications, whereas we have taken the usual museum approach that the cutoff between UV and visible light is at 400 nm.

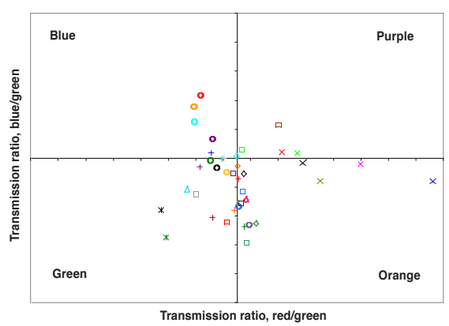
CIE L*a*b* colorimetric data are shown in figure 8. The a* and b* values show several significant outliers, but do not correlate well with visual evaluation of the colors of the samples. This is likely due to the fact that highly transparent samples can have low chroma but still be highly saturated.

Figure 8. Films in CIE L*a*b* space



The transmission of the films at 425 and 675 nm, as compared with 550 nm, are plotted in figure 9. These data are presented in an attempt to quantify the common problems of films cutting out part of the blue along with the UV, and of decreasing transmission in the red. In this representation, the center of the graph is neutral colored, the upper left is blue, the upper right is purple, the lower left is green, and the lower right is orange. This representation correlated more strongly with visual observations, except in the case of the Global Window Films samples. These tend to increase in transmission sharply above 650 nm, which results in their appearing less red to the eye than the calculations suggest, due to the eye's lower sensitivity in that range. It should be borne in mind that no mathematical measure of color is a replacement for human observation.

Figure 9. Change in film transmittance at high and low wavelengths



Conclusions

The most important considerations for a museum when selecting a window film are the overall amount of UV blocked, the steepness and location of the cutoff curve, and the color appearance. Table 2 lists these properties for all the films evaluated. By setting 95% as the minimum acceptable UV rejection level for the 300-400 nm range and 390-410 nm as an acceptable range for the midpoint of the cutoff curve, the list of films suitable for museums can be narrowed down.

In contrast to the findings published previously (6), this study found all of the 3M films to perform well enough for museum use. These films rejected at least 97%, and most more than 98%, of the UV radiation below 400 nm, and the Prestige line had the steepest cutoff curve of any of the films evaluated. The only potentially objectionable trait of these films is their tint: 3M does not produce a highly transparent UV-blocking film and the Night Vision line is mirrored, which may not be appropriate for museums.

The 3M films have their UV absorbers incorporated into the adhesive. Previous studies (2, 6) have indicated that this is less desirable than having a separate UV-blocking layer, leading to worse performance and longevity, but no experimental support has been given for this assertion. Our findings show that the 3M films performed more uniformly well than any other brand, despite having UV blockers in the adhesive; the second part of the study will evaluate their longevity.

Most of the Llumar and Madico films were found to be acceptable, in agreement with the earlier study, but several of these films rejected less than or exactly 95% of the UV light. Films from these manufacturers should be evaluated on a case-by-case basis. CPFilms, Llumar's parent company, also owns Vista. The single Vista film evaluated performed well, but generalizations about the brand cannot be drawn from that one sample.

Few of the Global Window Films were acceptable because the midpoints of the cutoff curves for most of these films were much too short in wavelength. The films also had uneven transmission in the visible range, although visually the films did not appear as highly colored as the colorimetric data would indicate. Only the darkest tinted films were found to reject an adequate amount of UV light. These findings correlated with the findings of the previous study (6).

The tinted HanitaTek films did not perform well according to the criteria used in this study. In particular, the Optitune and Silver lines are highly mirrored and appear slightly blue. While non-neutral color is not necessarily a failing for these films, which are marketed for their aesthetics as well as their utility, it does make them unsuitable for use in a museum setting. UV rejection was also variable.

Of the less widely distributed films, the Artscape Energy Film, a do-it-yourself adhesive-free film, is clearly unsuitable for museum use. The V-Kool films, which are marketed primarily as IR-blocking rather than UV-blocking, perform acceptably but have too much of a green tint.

Some sources have suggested that the ideal UV filter would block all radiation under 400 nm but no visible light (2). This study evaluated several highly transparent UV-blocking films with visible transmissions of 80% or above: Llumar UVCL, GAM #1810, HanitaTek UV Filter Film, and Madico CLS-200-X, CL-200-XSR, and CL-200-X. Only the Madico CL-200-XSR and CL-200-X were found to be unacceptable. Of the others, GAM #1810 was the weakest performer, but the other three blocked greater than 97% of the UV and had good color neutrality, making them all acceptable options.

The present study looked at a small number of representative films from each company. In many cases, other films

Table 2. Overall Performance of Various Window Films (x indicates rejection based on this property)

Film	UV Blocking	Cutoff Midpoint	Tint Color
3M Night Vision 15	98.6%	395 nm	Mirrored Neutral
3M Night Vision 35	97.2%	396 nm	Mirrored Neutral
3M Prestige 40	98.5%	402 nm	Neutral/Yellow
3M Prestige 50	98.3%	400 nm	Neutral/Yellow
3M Prestige 70	97.3%	399 nm	Neutral/Cyan
3M Ultra Prestige 70	98.4%	400 nm	Neutral/Green
3M Neutral 20	98.8%	394 nm	Neutral
3M Neutral 35	97.2%	395 nm	Neutral
Artscape Energy Film	85.7% x	384 nm x	Cyan x
Llumar N1020	97.8%	396 nm	Neutral
Llumar N1065	94.9% x	398 nm	Neutral
Llumar NUV65	98.0%	406 nm	Neutral/Orange
Llumar UVCL SRPS	97.2%	404 nm	Neutral/Yellow
Vista Soft Horizons V33	98.2%	401 nm	Neutral
GAM 1810	95.5%	401 nm	Neutral/Orange
GWF Delta Dual Reflective 25	95.9%	396 nm	Neutral/Orange
GWF Delta Dual Reflective 45	94.4% x	397 nm	Neutral
GWF Glare Cut NR 35	94.7% x	388 nm x	Neutral/Red
GWF Glare Cut NR 70	92.6% x	391 nm	Neutral
GWF Residential Neutral 20	97.7%	392 nm	Orange/Red x
GWF Residential Neutral 50	93.2% x	387 nm x	Neutral
HanitaTek Cold Steel 20	96.9%	388 nm x	Neutral
HanitaTek Cold Steel 50	93.8% x	390 nm	Neutral
HanitaTek Cold Steel 70	97.2%	402 nm	Neutral
HanitaTek Optitune 15	99.0%	393 nm	Mirrored Blue x
HanitaTek Optitune 30	94.6% x	388 nm x	Mirrored Neutral/Blue x
HanitaTek Optitune 55	92.8% x	389 nm x	Mirrored Neutral
HanitaTek Silver 35	94.6% x	386 nm x	Mirrored Blue x
HanitaTek Silver 50	91.8% x	387 nm x	Mirrored Blue x
HanitaTek UV Filter Film	97.9%	408 nm	Neutral/Yellow
Madico Advanced Ceramic 3000	97.3%	396 nm	Neutral/Green
Madico Advanced Ceramic 6000	95.0%	396 nm	Neutral/Yellow
Madico CLS-200-X	98.5%	409 nm	Neutral
Madico CL-200-XSR	94.2% x	397 nm	Neutral
Madico CL-200-X	94.5% x	398 nm	Neutral
Madico NG-20	99.2%	394 nm	Violet x
Madico Sunscape Satin 550	95.0%	394 nm	Neutral
Madico TSG-335	98.7%	402 nm	Neutral
V-Kool VK 40	98.2%	401 nm	Green x
V-Kool VK 70	97.1%	400 nm	Green x

UV-Blocking Window Films for Use in Museums—Revisited, continued

from the same line may be assumed to perform similarly to the ones tested. For example, the commonly used 3M Night Vision 25 was not tested, but because both the Night Vision 15 and 35 reject approximately 98% of UV, the Night Vision 25 may be assumed to do so too. For product lines that demonstrated less consistency, however, the behavior of other films in the same line cannot be predicted. Also, because manufacturers may change the composition of a film at any time, the performance of all UV-blocking films should be verified before installation. While film transmittance can be measured with a light meter, measurement with a spectrometer is recommended to obtain greater accuracy and detail.

Further Research
This paper is the first in an extended investigation of the spectral properties and durability of UV-blocking window films. An accelerated aging study of the films found to be acceptable is currently in progress to determine how their UV rejection and appearance change with time of exposure to simulated sunlight.

Suppliers
Aladdin Glass (supplier of glass blanks)
9007 De Soto Ave
Canoga Park, CA 91304
818.700.7833 aladdinglass.com

Artscape Inc.
3487 NW Yeon Ave
Portland, OR 97210
877.729.0708 artscape-inc.com

CPFilms (distributor of Llumar and Vista)
Western Distribution Center
1849 West Sequoia Ave.
Orange, CA 92868
714.634.0900 cpfilms.com

GAM Products Inc.
4975 West Pico Blvd.
Los Angeles, CA 90019
323.935.4975 gamonline.com

Global Window Films
Global/Express West
330 East Orangethrope Ave
Placentia, CA 92870
800.345.6669 globalwindowfilms.com

HanitaTek
220 Regency Court, Suite 200
Brookfield, WI 53045
800.660.5559 hanitatek.com

Suntech (3M distributor)
18401 Vanowen St
Reseda, CA 91335
818.342.9285 3m.com

V-Kool, Inc.
13805 West Road, Suite 400
Houston, TX 77041
800.786.2468 v-kool-usa.com

Window Tints, Etc. (Madico distributor)
6030 Santa Monica Blvd
Hollywood, CA 90038
323.466.0608 madico.com

References

1. Staniforth, S., 1987. "Problems with ultraviolet filters," *Lighting Pre-Print: A Conference on Lighting in Museums, Galleries and Historic Houses*. Bristol, UK: The Museums Association, United Kingdom Institute for Conservation, and Group of Designers and Interpreters in Museums, 25-30.

2. Crews, P. C., 1989. "A comparison of selected UV filtering materials for the reduction of fading," *J. Am. Institute Cons*. 28:117-125.

3. Craft, M. L. and M. N. Miller, 2000. "Controlling daylight in historic structures: A focus on interior methods," *APT Bulletin* 31.1:53-59.

4. Pereira, M. and S.J. Wolf, 2004. "Choosing UV-filtering window films," Museum Management Program, National Park Service, *Conserve O Gram* 3/10, revised.

5. Vávrová, P., H. Paulusová, and I. Kučerová, 2004. "The properties and lifetime of polymer UV films," *Restaurator* 25:233-348.

6. Springer, S., 2008. "UV and visible light filtering window films," *WAAC Newsletter* 30.2:16-23.

Reform of the MSDS is Coming

by Monona Rossol

You readers and others have made me an MSDS expert. For 25 years, I have offered to interpret and comment on MSDSs you send or attach to an email. So I've read thousands. And most stink.

MSDSs Today
The Occupational Safety and Health Administration (OSHA) requires 12 categories of information on MSDS, but many MSDSs don't cover all of them. Finding information is difficult because there is no set format in which the data must be presented. Confusing and contradictory statements, outright errors, and data that is years out of date are common on MSDSs.

Even worse, over the last decade I have seen more and more manufacturers reinterpreting OSHA's regulations to mean they only have to list ingredients as hazardous if they are one of the roughly 400 chemicals for which OSHA has standards. Some manufacturers felt free to simply withhold from us the presence of any chemical for which there was no specific OSHA regulation or air quality standard. Usually they will even tell you they are doing this with statements such as "no regulated ingredients" or "no OSHA standards apply to any components."

Listing only 400 ingredients is outrageous when you realize that the US EPA estimates there are 100,000 chemicals in commerce, the European Union has registered 140,000 chemicals to be used in their products, and the Chemical Abstract Service recently registered its 50 millionth chemical.

MSDSs got to this sad state simply because no person or government agency checks MSDSs for accuracy or completeness. The information on an MSDS is only likely to be scrutinized after an accident, injury, or lawsuit. With no enforcement, there is little incentive to create good MSDSs.

Cavalry Coming
A United Nations program spearheaded by the European Union has come up with the answer to the MSDS problem. In 2003, the United Nations (UN) adopted the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The GHS classification system was worked out to promote common, harmonized criteria for the classification of chemicals and the aid in the development of a worldwide standard for compatible MSDSs. And in the process, they dropped the "MSDS" name and call the new GHS documents just "Safety Data Sheets."

The GHS is being adopted by more and more countries. Our manufacturers better get used to creating GHS compatible Safety Data Sheets if they want to sell products to the rest of the world.

OSHA already sees this coming. On September 30, 2009, OSHA published a proposed rule (74 FR 50279-50549) to up date the Hazard Communication Standard to adopt the GHS classifications of chemicals and the new Safety Data Sheets. These measures would enhance public health and reduce trade barriers by using universal hazard statements, pictograms, and signal words to communicate hazardous information on product labels and safety data sheets. These new Safety Data Sheets are infinitely more usable for workers, consumers, and non-technical people.

The Purple Book
The rules for the new Safety Data Sheets are all found in a large publication available online from the United Nations in a big book with a purple cover. Its called the *Globally Harmonized System of Classification and Labelling of Chemicals, 3rd Revised Edition*. Just googling "the GHS Purple Book" should score you a copy. It can be downloaded for free in English or any other major language.

In the Purple Book's Annex [appendix] 4, there is the following advice which sums up the misleading statements about untested chemicals we currently see here in the US and how these statements are no longer acceptable:

A4.3.11.4 General statements such as "toxic" with no supporting data or "safe if properly used" are not acceptable as they may be misleading and do not provide a description of health effects. Phrases such as "not applicable," "not relevant," or leaving blank spaces in the health effects section can lead to confusion and misunderstanding and should not be used. For health effects where information is not available, this should be clearly stated.

So the new Safety Data Sheets tell us what is not known, along with what is known. For example, our old MSDSs often tell us that a substance is not considered a carcinogen by various research and governmental agencies. You would be misled if you assumed this means the substance is not a carcinogen. Instead, it usually means there are no cancer studies for these agencies to evaluate!

While the new Globally Harmonized Safety Data Sheets can't change the fact that most of the chemicals we use have never been tested, they will tell us unequivocally which tests have been done and which have not. I hope that workers and consumers one day will be motivated to action when they see over and over again from their Safety Data Sheets that even many of the common chemicals they use have never been tested for cancer–or any other chronic hazard.

Definition Changes
There is also a vital change in the definition of a health hazard. OSHA requires MSDSs to list ingredients present in amounts of 1.0 percent or more if they pose a "health hazard" to workers. OSHA defines a health hazard as "a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees."

You don't have to be a lawyer to see that chemicals for which there are no data whatever are, by OSHA's definition, not health hazards! But on the new Safety Data Sheets, a series of blanks for the various toxicity tests for untested chemicals will repeatedly contain the statement that there is "no data available." Finally people will be able to easly identify chemicals that are untested.

The new Safety Data Sheets reflect the European Union's influenced in two aspects: 1) the adoption of the Precautionary Principle which does not assume untested chemicals are safe (as US regulations do currently), and 2) the strategy of considering suspect, until proven otherwise, all chemicals that are closely related to a known toxic chemical. Common sense appears to be coming at last.

OSHA Proposed Rule
The OSHA's proposal to update the MSDSs closed its comment period on December 29. Soon, OSHA will publish some of these comments, the majority of which probably will be complaints about the changes from manufacturers. I worry that manufacturers will obtain the right to give US workers the old MSDSs and will only provide the GHS Safety Data Sheets to their foreign customers.

But while we can hear the cavalry blowing the call to "charge" in the distance, US workers and consumers will still have to contend with the crap that constitutes most US MSDSs today.

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Articles You May Have Missed

Susanne Friend, column editor

"Le Roy Artist's Painting to be Unveiled at U.S. Capitol," *The Daily News*, 09/23/2009

Senator Charles E. Schumer and other Senate leaders will unveil a painting of legendary Senator Henry Clay donated by the Le Roy Historical Society at a special ceremony in the Capitol in Washington, D.C., Wednesday night.

Henry Clay, known as the "Great Compromiser," spent nearly 50 years in Congress, serving as speaker of the House, and as a highly effective senator, perhaps the leading statesman of his time. He was his party's nominee for president three times. The ceremony will mark the official presentation of the 145-year-old painting to the Senate after undergoing months of extensive restoration.

The painting is one of a very few known paintings that show the Old Senate Chamber as it was before being becoming the Supreme Court chamber in 1859. The portrait was painted by Le Roy artist Phineas Staunton in 1865.

The entire surface of the 7- by 11-foot painting was cracked and flaking. It had suffered multiple tears and sustained significant damage at the places where basketballs had been thrown at it during the years it hung in a school gymnasium. For nearly a year and a half, conservators consolidated flaking paint using adhesive and a hot air gun, repaired the tears, reinforced weak portions of the canvas, and filled in patches where paint has been lost.

"3 Years after Quake Damage, Big Island's Hulihee Palace Restored,"*Hawaii Tribune-Herald*, 09/26/2009

Kailua-Kona's famous Hulihe'e Palace, a National Historic Landmark, has been restored to its circa 1885 stateliness after being severely damaged by the October 2006 earthquake.

The landmark has been closed since December 2007 for the renovation work. Built in 1838 by Gov. John Adams Kuakini, Hulihe'e has again been restored to circa 1885, a period known in Hawaiian history as the Kalakaua Era when King David Kalakaua ruled the Hawaiian kingdom.

The palace was restored under the direction of the Connecticut-based John Canning Painting and Conservation Studios. During the 20-month restoration project, Hulihe'e's artifact collection was catalogued and stored. The treasures were recently returned to the two-story palace in all their splendor.

Treasures include javelins and spears belonging to King Kamehameha the Great as well as the king's massive, rotund lava rock that he used as an exercise ball to master agility and balance; it weighs a whopping 180 pounds.

"A Faded Past…But a Bright Future for Stained Glass," *EuroNews*, 09/23/2009

Ulrike Brinkmann, art historian and head of Stained Glass Conservation Studio at Cologne Cathedral is part of a team of thirteen, working to restore the cathedral's glass to its former glory.

Brinkmann says that these priceless European artworks have a hidden, fragile character. The glass itself, pollution, and sometimes previous conservation techniques all work against the restorer and existing conservation methods are far from perfect. The European research project, Constglass, is carrying out research to assess the health of the stained glass in Cologne Cathedral while working on new restoration techniques.

Gerhard Schottner, Coordinator of the Constglass Project, says that the project is a unique opportunity to analyze the materials used in the restoration of stained glass over the last 30 years and to discover if the attempts were successful. The information gathered will help avoid the problems faced by glass in France and England and other European countries. New restoration methods are applied to the surface of the glass, electron microscopes are then used to see if the techniques halt the erosion. Researchers can then test the new methods at a chemical level and see how effective they are and if they can be reversed.

"Experts Awed by Anglo-Saxon Treasure," *The New York Times*, 09/24/2009

For the jobless man living on welfare who made the find in an English farmer's Staffordshire field two months ago, it was the stuff of dreams: a hoard of early Anglo-Saxon treasure, probably dating from the seventh century and including more than 1,500 pieces of intricately worked gold and silver whose craftsmanship and historical significance left archaeologists awestruck.

Experts described it as one of the most important in British archaeological history. Tentatively identified by some experts as bounty from one of the wars that racked Middle England in the seventh and eighth centuries, they included dagger hilts, pieces of scabbards and swords, helmet cheekpieces, Christian crosses and figures of animals like eagles and fish. Archaeologists tentatively estimated the value of the trove at about $1.6 million.

They took vicarious pleasure in noting that the discovery was not the outcome of a carefully planned archaeological enterprise, but the product of a lone amateur stumbling about with a metal detector. Terry Herbert, 55, spent 18 years scouring fields and back lots without finding anything more valuable than a piece of an ancient Roman horse harness. Now, under British laws governing the discovery of ancient treasures, he stands to get half the value of the booty.

"A High-Tech Hunt for Lost Art," *The New York Times,* 10/05/2009

Dr. Seracini, an engineering professor at the University of California, San Diego, has spent years in bureaucratic limbo waiting to fire neutron beams into the wall in the Salone dei Cinquecento in Florence's Palazzo Vecchio hoping to find Leonardo's largest painting, *The Battle of Anghiari*.

Although it was never completed — Leonardo abandoned it in 1506 — he left a central scene of clashing soldiers and horses that was hailed as an unprecedented study of anatomy and motion. During the remodeling of the hall in 1563, the architect and painter Giorgio Vasari covered the walls with frescoes of military victories by the Medicis, who had returned to power. Leonardo's painting was largely forgotten and presumed destroyed.

Recent evidence may prove otherwise, however. Radar scanning showed that Vasari had not plastered his work directly on top of Leonardo's, but had erected new brick walls to hold his murals, leaving a gap. With help from physicists in the United States, Italy's nuclear-energy agency, and universities in the Netherlands and Russia, Dr. Seracini developed devices for identifying the telltale chemicals used by Leonardo.

One device can detect the neutrons that bounce back after colliding with hydrogen atoms, which abound in the organic materials (like linseed oil and resin) employed by Leonardo. The other device can detect the distinctive gamma rays produced by collisions of neutrons with the atoms of different chemical elements.

Developing this technology was difficult, but not as big a challenge as getting permission to use it. Once he gets permission, Dr. Seracini said, he hopes to complete the analysis within about a year.

"Restoring Afghanistan," *Wall Street Journal*, 10/08/2009

Afghanistan is not quite ready for tourists. But when it is they will stand here, at the edge of Kabul's Old City, preparing to explore the area of a couple of square miles known as Asheqan wa Arefan.

Though from a distance Asheqan wa Arefan looks downtrodden, on closer inspection it contains many lovely 18th- and 19th-century wooden houses, sensitively renovated over the past seven years by the Aga Khan Trust for Culture. The AKTC is best known for its restoration of Baghe-Babur, or Babur's Gardens. This high-profile project provided one million man-days of labor and trained 100 skilled workers. But the AKTC has been working quietly south of the Kabul River on projects that few besides the residents of the neighborhood see.

After the artisans finish, the houses are simply returned to their owners, with the stipulation that they take care of them. The AKTC has also been active in Herat's Old City, 400 miles away. Herat has the greatest concentration of historic buildings in Afghanistan.

The AKTC has restored 13 historic houses and portions of one important site—the Gozargah Shrine, on the outskirts of the city—and the enormous 14th-century Arg, or Citadel. But its civilizing mission can be fully appreciated in the group of more modest projects in the Old City, including two centuries-old underground water cisterns, a shrine dating from 846, two synagogues, a covered bazaar and several houses.

"Restoring a Harlem Mural Inspired by a Masterpiece," *The New York Times*, 10/09/2009

For two years, conservationists and artists had been restoring a faded mural by the artist Eva Cockroft, painted in 1986. The mural was inspired by a Georges Seurat masterpiece, but turned into a Harlem version of it.

The colors resemble Seurat's work *A Sunday Afternoon on the Island of La Grande Jatte*. But this is La Grande Jatte in Harlem – where a bugler announces that it's church time, African-Americans stroll, and the bold jewel tones of the Caribbean and the American South replace the soft French Impressionist palette.

Ms. Cockcroft didn't use a primer coat or a varnish, decisions that exposed the paint to the elements and hastened the deterioration. So instead of reviving the original work, the artists repainted the mural. They consulted photographs from 1986, under the guidance of Harriet Irgang Alden of Rustin Levenson Art Conservation.

"To be true to the artistic intent, we painted over," said Ms. Alden. "There's no technique for turning faded paint back to its original color." The mural, "Homage to Seurat: La Grande Jatte in Harlem," is the only remaining New York City work by Ms. Cockcroft, a prominent painter in the community mural movement, which began in the 1960s. It was the first mural to be restored by Rescue Public Murals, a national program founded in 2006 to preserve the historic and artistic value of community murals.

There are 70 colors of paint mixed in the new version and an ultraviolet-resistant varnish. To gauge the effects of weather on the different applications of paint, artists left multiple control layers.

"Greece Unveils Museum Meant For 'Stolen' Sculptures," *NPR*, 10/19/2009

A new, hypermodern museum at the foot of the Acropolis in Athens has a defiant purpose: to convince Britain to give back the symbols of ancient Greek glory, the 2,500-year-old sculptures of the Parthenon that were pried off the temple by Lord Elgin two centuries ago.

For decades, the main argument against the return of the sculptures was Greece's lack of a suitable location for their display. The new Acropolis Museum is a stunning rebuttal.

Designed by Swiss-American architect Bernard Tschumi, the five-story building has an area of 226,000 square feet. Its glass-covered exterior walls reflect the images of the Parthenon and surrounding ruins. The Parthenon Gallery is the showcase of the new Acropolis Museum in Athens, Greece. The entire 525 feet of the Parthenon's frieze is recreated in the gallery. Plaster casts of the sculptures housed in London are interspersed with original pieces Elgin left behind, emphasizing to the public what is missing.

While pressure on the British Museum has increased, its spokeswoman, Hannah Boulton, firmly rejects repatriating the chiseled marbles to Greece. Nevertheless, Acropolis Museum director Dimitrios Pandermalis says his aim is to reunify the entire composition close to its original setting.

"Restored Murals Reinstalled at Orpheum Theater," *Sioux Falls Argus Leader*, 11/11/2009

The dancing Grecian ladies in the murals at the Orpheum Theater recently became more vivid, even as their history remains a cloudy mystery.

After a yearlong, $40,000 restoration project, two murals original to the 1913 building were reinstalled this week, without the almost 100 years of grime. No one is sure who painted the six rectangular murals and the large one above the stage. Beyond that, the whereabouts of two of the six rectangular murals is unknown.

In the 1970s, two of the murals featuring theater were sent to New York to be restored. They never came back. After that experience, the remaining murals were hand delivered to the Minneapolis-based restorers. Because of water damage on the walls behind them, the paintings had been wrenched from the wall making as many as 100 holes in one of the paintings. They were also very moldy.

"They don't come in much worse shape than these," said David Marquis, a senior paintings conservator with the Midwest Art Conservation Center, which did the restoration.

"Feels Like Walking Under Broken Glass," *Prague Post*, 10/21/2009

The mosaics on the facade of the Grand Hotel Europa in Wenceslas Square are a textbook case of the delicate works in need of restoration. If Prague authorities don't act quickly, many will be lost forever, says conservation expert Tomá Hájek.

Fragile and prone to developing an ugly gray crust, the mosaics are high-maintenance public art, and government agencies are not providing the funding to preserve them. The first glass mosaic north of the Alps was Czech, commissioned by Charles IV to decorate the South facade of St. Vitus' Cathedral.

In the 1930s, a new type of mosaic-glass, potash, was invented in Czechoslovakia. Under communism, glass mosaics continued to thrive, and the number of potash colors swelled to 4,000, giving Czech mosaics extraordinary tonal subtlety. When the tiles come into contact with water, potassium in the glass gradually rises to the surface, where it combines with pollutants in the air to create a gray layer of corrosion on the tile's surface.

Removing this crust without harming the glass is a time-consuming and expensive process, and simply removing the corrosion is a short-term strategy, because decay begins again immediately.

"Rags to Riches as Tapestry Masterpiece is Restored to its Former Glory,"*Telegraph*, 11/1/2009

A tapestry that has survived since the fifteenth century is to go on display for the first time in 20 years.

The War of Troy Tapestry will be the key attraction at the new Medieval & Renaissance Galleries at the V&A Museum in London. It depicts the story of the Trojan War and the arrival of the Amazon Queen Penthesilea to help the beleaguered Trojans against the Greeks.

Intricately woven in wool and silk and measuring 13ft by 23ft, it was made between 1475 and 1490 in Tournai, in the Southern Netherlands, now Belgium. The tapestry originally belonged to Charles VIII of France and was the ninth of an 11-piece set, which when displayed, would have covered more than 100 metres of wall.

During the restoration process, the tapestry was "wet cleaned" in Belgium. It was then returned to the V&A where it underwent 4,000 hours of conservation work at the V&A's textile conservation studio. The tapestry was rested on a repair frame and completely lined with a fine linen fabric, while larger areas of loss and damage were reinforced with heavier linen.

The conservators used synthetically-dyed British wool yarns to match the tapestry's original vegetable-dyed wool warp and wool weft. The silk weft was repaired with threads from France.

"Yemen Finds Dreamland of Architecture," *The New York Times*, 11/15/2009

Sana's Old City is one of the world's architectural gems, a thicket of unearthly medieval towers etched with white filigree and crowned with stained-glass windows. But more unusual than their mere survival is the fact that the traditional building arts continue to thrive here.

The country largely missed the urban renewal phase of Arab history, in which kings and presidents cleared out ancient neighborhoods and markets in an effort to bring their nations into the modern age. By the early 1980s, when Yemen was still emerging from its medieval slumber, preservation was already in vogue.

Architects rediscovering the Old City soon found there was more than beauty at stake. The traditional houses were also more durable and effective than concrete-based modern houses, and better suited to the climate. The traditional plaster, joss, does not erode stones over time the way cement does, and is more durable. Qadad, a stone-based insulation material used in roofs and bathrooms, is much stronger than modern equivalents.

The old stones and insulation techniques are calibrated to the sharp temperature shifts of night and day in Sana's desert climate, so that the sun's warmth fully penetrates a house's walls only at day's end, and is then retained through the night and no longer. They are also much more soundproof and private than concrete.

In 1986, Unesco, the United Nations culture agency, recognized the Old City as a World Heritage site, helping to secure money for its maintenance.

"By Happy Accident, Chemists Produce a New Blue," *The New York Times,* 11/23/2009

Chemists at Oregon State University have created a new, durable and brilliantly blue pigment by accident.

The researchers were trying to make compounds with novel electronic properties, mixing manganese oxide, which is black, with other chemicals and heating them to high temperatures. Then Mas Subramanian, a professor of material sciences, noticed that one of the samples that a graduate student had just taken out of the furnace was blue.

In the intense heat, almost 2,000F, the ingredients formed a crystal structure in which the manganese ions absorbed red and green wavelengths of light and reflected only blue. When cooled, the manganese-containing oxide remained in this alternate structure.

The other ingredients — white yttrium oxide and pale yellow indium oxide — are also required to stabilize the blue crystal. When one was left out, no blue color appeared. The pigments have proven safe and durable, although not cheap because of the cost of the indium. The researchers are trying to replace the indium oxide with cheaper oxides like aluminum oxide, which possesses similar properties.

"Restorers Race Against Time," *Bangkok Post*, 11/28/2009

Currently there are 749 ancient mural paintings registered with the Fine Arts Department. Most of them are located in Buddhist temples across the country. Some of these murals date back 700 years to the Sukhothai period.

Many have been vandalized by thieves while others have been ravaged by time. Conservationists are racing against time to preserve these rare murals as the Fine Arts Department is short of money and manpower to do the job properly. The department can restore only 10 major pieces a year. Experts agree these old paintings cannot withstand the elements and any technological help toward restoration efforts is desperately needed. They argued that conserving these ancient murals cannot wait and all available means and resources must be harnessed for the restoration and repair work.

The Fine Arts Department is now planning to restore the murals in the underground section of Wat Rat Burana using the ceramic boarding technique. The department hopes this pilot project would help "immortalize" these unique paintings. To offset the cost of the project, the department is likely to seek sponsorship from corporations which have a policy of promoting culture and art conservation.

"Iconic Piece of Furniture Preserved,"*Tasmanian Government Media Releases*, 12/15/2009

Tasmanian Museum and Art Gallery (TMAG) Director Bill Bleathman today announced the successful conservation of a piece of 1820s Australian colonial furniture from the state's collection at the Tasmanian Museum and Art Gallery.

The sofa was purchased for TMAG in 2005 by the Federal Group, with assistance from the Art Foundation of Tasmania, for a record price at auction. The Hamilton Inn Sofa is an iconic piece of colonial furniture and is extremely rare, having survived largely unaltered for about 180 years.

The sofa was carefully transported to Sydney to undergo a rigorous and cautious restoration process. The conservation process included the removal of stains, surface cleaning, and the realigning of torn and distorted fabric. The Hamilton Inn Sofa has now returned to Hobart and is on display in TMAG's Colonial Gallery.

"Rare Saco Artifact Undergoes Restoration," *Kennebunkport Post*, 12/18/2009

Nearly 160 years after audiences crowded into theaters to watch John Bunyan's epic *Pilgrim's Progress*, the moving panorama is headed for a facelift.

The Saco Museum last week secured a $52,000 Save America's Treasures grant to restore the 800-foot-long and 8-foot-tall panorama that depicts 60 scenes. The panorama, also called "Bunyan's Tableau," was created in 1851 with distemper paint on muslin.

It was presented to audiences nationwide, its scenes scrolling from one roll to another across a stage, featuring dramatic lights, music and narration. The panorama traveled for about 30 years. Someone then bought the panorama and stored it in a Biddeford barn. In 1896, the panorama was given to the York Institute (now the Saco Museum), where it was displayed the following year. After it was rolled back up, the panorama was tucked into a dusty corner of the basement, where it was "lost" to curators for 100 years.

Despite its age, the panorama is mostly intact. Restoration will begin in January, when the panorama is shipped to the Williamstown Art Conservation Center in Massachusetts. The work will include fixing and replacing paint and stabilizing the fabric, which is creased and ripped. Restoration will take about a year.

"Getty Center Conservators Restoring Norton Museum of Art's 'Enthroned," *Palm Beach Daily News*, 12/19/2009

The Norton Museum's *The Enthroned Madonna and Child* by Giovanni Francesco Bezzi, who is known as Il Nosadella, has been at the Getty Conservation Institute at the Getty Center in Los Angeles, where the nearly 450-year-old oil-on-panel painting is being conserved.

The work, which hasn't been conserved since the museum acquired it, was starting to flake, because the three poplar panels on which it was painted were warping. A less obvious fact was revealed when the painting arrived at the Getty.

When Getty Center conservator Sue Ann Chui cleaned the painting, she discovered that the golden background surrounding the mother and child was not original. Instead, the pair are surrounded by a rainbow halo. "She is sitting in a rainbow on an arc of light," Chui said. "Before, she was floating ... That's a major change."

The discovery changes the painting's iconography, as well as its appearance. Instead of being seated, the madonna and child are ascending into heaven, the highest state of divinity. Even though the surface of the painting resembled a washboard, most of the work's original paint was intact. The majority of the paint loss occurred along the joints, Chui said.

Repairs included separating the planks and inserting butterfly wedges to mend old splits and arrest further warping. The planks were rejoined using a complex framework to hold them as they were realigned in a smooth, slightly convex curve.

"Their Art has to be Unseen to be Believed," *Rutland Herald* (VT), 12/27/2009

Do as little work as possible and try not to get noticed. That may sound like a good way to get fired, but it is also the credo a good art restorer lives by. When the works are displayed to others, restorers have to hope they have done their work so deftly that the repairs blend seamlessly into the whole.

Art restorers go through years of training. All that training is intended to instill good judgment and teach the restorer to make a repair with the least invasive and most reversible technique possible.

Another mantra for restorers is that any substance used to repair an object has to be removable, says Randy Smith, one of the state's leading art restorers. Interestingly, one process that can't be reversed is cleaning. "Once it's gone, it's gone," Smith says.

Nancie Ravenel, the Shelburne Museum's objects conservator, and Rick Kerschner, the museum's director of preservation and conservation, work with the museum's curatorial staff to decide how best to restore an object. Inevitably, part of the work of restorers is dealing with issues created by previous restorers, who used what are now outdated techniques.

Kerschner understands that people in the field are constantly coming up with better ways to do things. "(Earlier restorers) were doing the best they could at the time," he says. Seeing the flaws in earlier work tends to make restorers humble about their own abilities and persuades them to work with a light touch. "As good a job as we think we can do," Kerschner says, "in the future they will probably find they can do it better."

The first three of these articles appeared as a series about damaged portraits at the Beaufort County Courthouse. The fourth article was published after the first three resulted in voluble commentary.

"Damaged Portraits are being Restored," *Washington Daily News*, 1/21/2010

A hunt for Christmas decorations two years ago unearthed a treasure trove of damaged paintings hidden in a closet in the Beaufort County Courthouse. Efforts are under way to repair the portraits, which depict five leading Beaufort County residents from the past, and hang them in the Superior Courtroom, according to Clerk of Court Marty Paramore.

The story behind the damage was revealed by Jim Vosburg, former attorney and Superior Court judge. Vosburg was a lawyer involved in what turned out to be a particularly contentious child-custody case in 1968. "It was a very, very vicious custody proceeding. Things got really unpleasant, and the court recessed for a two-hour lunch break." During the recess, the little boy who was at the center of the custody battle managed to get his hands on a court gavel. "He took that gavel and threw it at every portrait in the courtroom."

Damage to the portraits ranged from small dents in the paint to sizable tears in the canvas. In 2008 the Beaufort County Board of Commissioners voted to fund the repairs, at a total cost not to exceed $3,000.

Happy that the portraits would be repaired, Paramore solicited bids on the work. To his shock and disappointment, a Raleigh art conservator submitted a nonbinding estimate that ranged from $12,500 to $17,500. And that didn't include needed repairs to the ornate frames. Discouraged, Paramore feared the restoration work couldn't be done. Then, a local artist came forward and became intrigued with the project.

"Scoble is Restoring History," *Washington Daily News*, 1/22/2010

Nancy Scoble, a respected Washington artist and a genius at art restoration, was approached by Clerk of Court Marty Paramore and asked to consider taking on the project. She responded with enthusiasm. Experiences with family paintings prompted her to learn more about restoration. "I wanted to find out how to do this right, so I took course after course after course," she said. "I've worked on the restoration of canvas paintings as well as porcelain pieces."

The series of courthouse portraits, and older paintings in general, are covered with layers of soot and dirt from furnaces, along with nicotine stains from cigarettes, cigars, and pipes. This is in addition to the tears and gouges caused by the little boy wielding a wooden gavel more than 40 years ago.

Most of the portraits appear to date back to the 1860s, according to Scoble. She starts with a gentle cleaning and then begins the actual restoration process. "I work on the outside edge first and remove layers of grime," Scoble said. "I repair the tears and chipped paint and freshen the faces. And I stabilize the paintings."

"Courtroom is Gallery of Noted Citizens." *Washington Daily News*, 01/24/2010

When one enters the Superior Courtroom in the Beaufort County Courthouse, there's almost a feeling that the notables depicted in the paintings are looking down and making sure everything is being handled the way it should be. Included are prominent attorneys, District and Superior Court judges and even chief justices of the North Carolina Supreme Court, all with at least one thing in common — strong ties to Beaufort County and eastern North Carolina.

After a gavel-wielding youngster damaged five of them in the 1960s, the paintings are being restored for $3,000. Although the Washington Daily News' Web site has been inundated with comments from out-of-towners who are questioning the restoration project, local residents are pleased.

"Series Draws Big Response," *Washington Daily News*, 01/27/2010

A Washington Daily News series about a local artist's efforts to restore paintings housed in the Beaufort County Courthouse has generated an unprecedented number of comments on the newspaper's Web site. Clerk of Court Marty Paramore hired Washington artist Nancy Scoble to restore five paintings that had been stored in a closet under the stairs in the courthouse's lobby. Posted online at www.wdnweb.com, the series drew criticism from some members of the art-restoration community, and support from people who approved of using a local artist to perform the work.

According to Paramore, the criticism began with the publication of the first installment in the series. Taken together, the comments outnumbered those for all other local stories posted on the site since 2003, according to the Daily News' management.

A link to the first article in the three-part series apparently was posted to a conservators' chat room, said Perry Hurt, associate conservator with the N.C. Museum of Art in Raleigh. Most of the conservators' replies were not intended as personal criticism of Scoble, Hurt said. The article tapped into "this well of frustration" within the restoration community, he said.

For her part, Scoble apparently was blindsided by the controversy. Scoble, a local art teacher, said she took a private art-restoration course with a teacher in Boca Raton, Fla., in 1996. She said the restoration methods she uses are outlined in art publications, and that all of her work is done "under true archival process." "Everything is reversible," she added. Scoble said her touch-ups are done in watercolors, which are easily removed. "And I never use acrylic," she said. She uses wax to fill in rips and tears on canvas, and the wax also can be removed, Scoble continued.

She said her goal is to clean, reveal, and preserve the image as the artist intended it, with a focus on the figures in the foreground. She does little to nothing to the backgrounds of portraits. She also documents her work step by step with photography, saving the resulting images on CD.

In a later posting on the Daily News' Web site, Hurt apologized "for any disrespect" Scoble might have perceived in the online comments. "I want to make it clear that, in my view, it's not a personal attack," he told the Daily News. "It's a larger issue that these conservators were trying to address, in a good way or not a good way in some respects."