western association
waac
for art conservation
Newsletter

September 2012 Volume 34 Number 3

President's Letter

Daniel Cull

Dear Membership,

This is my third and final letter as President, it's a bittersweet moment. Writing this letter I've realized I'm sad to be leaving the board, but also glad to see my term coming to an end and the vague plans I laid out a year or so ago looking set to flourish into an actual real life conference.

Contents

Yes indeed, the annual meeting is nearly upon us. Planning seems to be going pretty well right now. In the last few months there have definitely been some days where nothing seems to come together however much I try, and then other days where it all seems to fall into place without my even having thought about it. Today was one of the latter days, so I'm in a very positive mood about the conference today and am truly looking forward to it. Papers will be presented from a range of conservation disciplines, in an interdisciplinary and collegiate setting for which WAAC is famous.

The Palm Springs Art Museum will provide a comfortable setting for enlightening discussions, and I hope you also take a bit of time to explore the museum itself - as PSAM have been kind enough to extend free entrance to all conference attendees. On the first day of the conference, there are also hikes and tours where you can join your colleagues to find out more about what Palm Springs has to offer. There's also an angels project where you can share your expertise and experience, as well as help out a collection in need. Don't forget to bring items for the silent auction, I've been told there's already some great stuff that's been donated… so dig deep and see what you can come up with. Whatever you do in Palm Springs I hope the annual meeting is fun and informative.

Having discussed a little about what I've been up to, I'd like to take a second to thank Vice President Nicholas Dorman, who formed a nominating committee with Suzanne Friend and J. Claire Dean, and worked tirelessly to put together the slate of candidates who stood in this year's election. I hope you voted, and even more than that, I hope that you'll consider standing for a position next year. WAAC relies on the effort of the volunteer board members to run, and there's much to be said for the positive experience of working closely with a group of dedicated conservation professionals from across the West. I wish Nick the best of luck as he transitions into the role of President, it's been great getting to know him this last year, and I'm sure he'll do a wonderful job. I extend the same best wishes to the new MALs and VP.

In the last *Newsletter* you'll have seen a membership survey, As you'll no doubt be aware, the idea for a survey came out of our thinking about the financial situation WAAC is in, as it's not great. Amongst the board there's been a lot of discussions this year about both the short and the long term sustainability of an organization such as ours. The questions essentially boil down to: What do we do? Why do we do it? Do we do it well? Should we do it? What else should we do? How do we pay for it? The board is only a small fraction of the total membership, so it seemed only logical to me that we broaden the discussion, and the scope of possible ideas, before coming to any decisions. Therefore the survey is a great opportunity for you to help shape the future of WAAC. I hope you'll take the time to share your thoughts.

As this is the last of my letters I thought I'd share some of my own thoughts; for what they're worth. I think this is a truly exciting time for our profession. We're living in a world that is in a period of flux, as new forms of content creation and sharing seem to appear and disappear in the blink of an eye. Yet the one constant seems to be a public expectation that information will be disseminated freely. We've seen university libraries drop journals that hold their content behind pay walls, and we've seen governments demand that the results of their funding be distributed through open-

President's letter, continued

access channels. At the same time we've seen corporations enact stricter controls over their brands and their copyrights. Every change comes with a cost and every action a reaction. It is my own belief that conservators will increasingly begin to look to their academic/professional organizations less to provide "answers" and more to provide "data" to use, and re/interpret themselves. This has already been seen in websites that present information about conservation based on data-mining sites such as the Consdistlist. As the edu-punks said "give us data, we'll visualize it for you." It seems to me that WAAC is in a great place to consider strategies to utilize this societal shift towards portability, free-sharing, and remixing, as we already have a pretty robust system of data sharing and dissemination - you're reading it right now! There are my thoughts, and I freely admit I may be entirely wrong. As Joe Strummer said, "The future is unwritten." What does your idea of the future look like? Please let us know.

I'd like to close by offering my appreciation to the board as a whole for their work over the last year. It's been a tricky year in terms of navigating financial troubles and issues of sustainability of a regional conservation organization, but WAAC seems to be weathering the storm thanks to all the board's hard work and dedication.

I'd like to extend an especially big thanks to outgoing MALs Molly Gleeson and Sean Charette, who joined the board at the same time as I did and who have both been a constant help to me in tasks big and small. I'd also like to extend a special thanks to Chris Stavroudis and Carolyn Tallent who have answered my numerous questions and provided sage advice. Their long term service to WAAC is an impressive example for us all. I'd also like to thank you, the membership, for without you WAAC simply wouldn't exist. After all you are the organization, which is why the first part of the *Newsletter* I read is always the regional news section, so excuse me while I turn the page.

See you in Palm Springs -

Cheers,

Dan

Welcome to the world Theresa Brynn and Abigail Drury Bender (5lb 7oz. and 5lb. 2oz) born June 19! And Congratulations to Moms Kate and Brynn Bender.

(One of the many perks of being a Board Member is having one's babies' pictures in the *Newsletter.*)

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WAAC Newsletter

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

Deadline
Contributions for the January *Newsletter* should be received by the Editor before **December 15, 2012.**

Western Association for Art Conservation

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

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

Regional News

Nicholas Dorman column editor

Alaska

Ellen Carrlee helped coordinate events around basketry at the Alaska State Museum for visiting NMAI conservators, Tlingit and Haida weavers, and other scholars in conjunction with Celebration: the biennial Northwest Coast Native event. She gave on online workshop on object labeling to Alaskan museums in July. She has been studying Apollo 11 and 17 moon rocks plaques in advance of possible litigation. In Fall 2012, she is headed to the University of Alaska Fairbanks on a semester long leave of absence as part of PhD studies in anthropology focused on Yup'ik use of gutskin.

The Alaska State Museum was awarded a 2012 AIC/ Heritage Preservation Ross Merrill Award for Outstanding Commitment to Preservation and Care of Collections to recognize 35 years of conservation outreach statewide.

Scott Carrlee has been supervising two conservation interns at the Klondike Gold Rush National Park in Skagway Alaska this summer.

Nicole Peters and **Katie Bonanno** have been working on historic artifacts from the George Rapuzzi collection that will be displayed in the Soapy Smith Parlor Museum when it reopens in 2016. On a recent trip to Skagway, Scott and the interns did a public program titled "What's it Made of, and How do You Take Care of It." Scott put to use for the first time the Alaska State Museum's recently acquired portable XRF to identify metal objects while Katie and Nicole gave advice on the care and preservation of objects and textiles. Scott also performed two assessments at the Duncan Cottage Museum in Metlakatla and the Cape Fox Heritage Foundation in Ketchikan.

Madeleine Neiman, UCLA-Getty Conservation Program graduate student, is interning at the Anchorage Museum with conservator and head of collections **Monica Shah**. She is treating a Dena'ina Athabascan fishtrap made in the 1950s. In between immersing herself in willow root information and treatment, she assisted both the Pratt Museum in Homer and the Seldovia Village Tribe's Museum. She will be at the Anchorage Museum until the end of August. Monica Shah has been overseeing this work, while also continuing to ready objects for exhibition. Most notably, two totems were donated to the museum last month and were moved to the museum recently, where one will be prepared for exhibition.

Regional Reporter:
Ellen Carrlee

Arizona

Rose Cull has finished a public conservation treatment at the Phoenix Art Museum on a contemporary wood sculpture by Cornelia Parker. Rose performed the treatment during museum hours and came down from her ladder twice a day to talk to museum visitors. Rose is the new assistant program chair for the Electronic Media Group (EMG), and she is excited to learn more about electronic media.

Going Postal

For those who may be curious: the strange return address and label placement on the cover seems to have satisfactorily met the new Post Office requirements. No *Newsletters* were returned in the last mailing.

The Editor

At the Musical Instrument Museum **Daniel Cull** was promoted to the position of Conservator. His recent work has included the conservation of a loan from Elvis Presley Enterprises (Graceland): a decorative leather custom-made guitar cover made for Elvis' Gibson J-200 acoustic guitar. The cover was used in all 20 live appearances Elvis made in 1957. The treatment was a weeklong focus for MIM's facebook page and was also featured in local media including the *Arizona Republic*.

Outside of work, after 500 posts and approximately 4 years and 3 months, Daniel decided to end his conservation blog. During its lifetime the blog seemed pretty popular, and was visited 215,436 times. Daniel has also been busy working on the 2012 annual meeting in Palm Springs, which is coming together pretty well, so he hopes to see you there!

Dana Senge, **Maggie Kipling,** and **Audrey Harrison** have been helping Mesa Verde National Park pack hundreds of the most fragile ceramics and organic objects for the move to their new state of the art storage facility. Dana's packing strategies, training methods, and planning for the park has them on track to move hundreds of thousands of artifacts. Dana also unexpectedly traveled to Glen Canyon National Recreation Area to safely pack object collections for travel to the repository in Tucson.

At the National Park Service lab Audrey worked on the stabilization of historic and archeological metals from Chiricahua National Monument and Fort Bowie National Historic Site. **Paige Hoskins** and **Amy Molnar** assisted the lab by working on the mechanical cleaning of a large Navajo rug from Grand Teton National Park.

Brynn Bender traveled by helicopter and foot into the backcountry of the Sonoran desert inside Organ Pipe Cactus National Monument to safely pack and transport four ceramic vessels. The vessels were found days prior by U.S. Border Patrol agents while on patrol near the Mexican border.

Martha Winslow Grimm is trying to ignore the hot Arizona summer and is continuing to treat artifacts from the International Quilt Museum, a project funded by a Save America's Treasures Grant.

Linda Morris is flattening rolled diazo plans and photographs from NPS to be stored in their Tucson archives repository.

Nancy Odegaard presented at the AIC in presentation and poster sessions and led three sessions at the Association of Tribal Archives, Libraries & Museum meeting in Tulsa. She was a keynote speaker and participant in the NSF Chemistry In Art advanced workshop at Villanova University. She lectured at the Museum Association of Arizona meetings, the UA archaeology field school, the UA ethnology field school, and co-taught a UA summer pre-session class in archaeological conservation with **Teresa Moreno**. She did a MAP survey for the Fort Peck Tribal Museum and CAP survey for the Rosson House Museum.

In addition to co-teaching a UA summer pre-session class in archaeological conservation, Teresa co-presented a session at the Museum Association of Arizona with **Gina Watkinson**, gave a lecture at the Arizona Science Center, and presented a paper and co-authored poster at AIC. She worked on objects for several large loans, repatriations, an exhibit, and continued planning work for upcoming building renovations. She recently returned from Greece from her seventh season as site conservator for the Mt. Lykaion survey and excavation project, where she supervised 1st year Queen's conservation graduate student, **Sarah Mullin**. Teresa continues work on her PhD research on the conservation of American Indian silver jewelry.

Summer conservation graduate interns at ASM are **Crista Pack** (2nd year WUDPAC) and **Casey Mallinckrodt** (1st year UCLA-Getty). Both are working on various conservation treatments including ceramics, baskets, and repatriation. They participated in a 1 week tour to northern Arizona including work at the UA archaeology field school and a survey project at the Ft. Apache Museum.

Gina Watkinson received travel awards from Museum Association of Arizona (MAA) and the University of Arizona to attend and co- present at the AIC, MAA, and ATALM conferences. She also participated in the northern Arizona tour. **Werner Zimmt** diligently continues his work in the lab with Nancy and also advised conservation students and interns on their lab projects.

UA Heritage Conservation Science students have been active with research projects; **Brunella Santarelli** presented a poster at AIC and **Elyse Canosa** presented a poster at the C14 conference in Paris. Transitions in the lab include: rock art scholar **David Vogt** (Norway) was a visiting scholar, **Marissa Shaver** left to start her PhD, **Kevin Wohlgemuth** was accepted into the UPenn architectural conservation program, **Martina Dawley** made presentations at the ATALM and AIC conferences, and **Marilen Pool**, project conservator is migrating from the ASM pottery project to the new ASM basketry project.

Regional Reporter:
Brynn Bender

Hawaii

At the University of Hawaii Preservation Lab, paper conservator **Seth Irwin**, with the assistance of preservation support technicians, **Kalanikiekie Sherry** and **Malia Van Heukelem**, are continuing to work on material damaged in the 2004 flood. This material is comprised of about 290 rare maps and several thousand aerial photographs.

The Attorney General's *koa* and *kou* wood desk, built in the 1870s by M. T. Donnell will be restored by **Thor Minnick**. The desk is significant in that it is the prototype from which numerous later iterations were made during the Monarchy Period that have been referred to as

"the Classic Hawaiian Desk." He also is continuing treatment of a large collection of Hawaiian *umeke* (calabash) privately held.

Rie and **Larry Pace** are currently involved in the conservation of a mural painted on a steel bulkhead (8" thick) in the wardroom of the USS Missouri in Pearl Harbor. The original painting depicted a partial world map on old parchment with the routes taken by the battleship during WW II. The painting was done by three of the crew as the ship traveled back to the US after the Japanese surrender. Had the ship's career ended with just one war their job would be much easier, but it was redeployed for the Korean War and for the first Gulf War. Each of those new crews partially, but enthusiastically, modified, repainted, expanded, and added routes to the painting.

In the studio they continue to work on projects for the Honolulu Museum of Art (formerly the Honolulu Academy of Art), the Bishop Museum, and numerous private and corporate clients.

Dawne Steele Pullman is back from Hong Kong and in Hawaii again working for her private clients. Presently she is treating a quite sweet beach bathing scene by D. Howard Hitchcock.

Gregory Thomas is currently providing painting conservation treatments for the Hawaii Volcanoes National Park on the Big Island of Hawaii. Gregory is pleased to have the opportunity to help preserve fine art by several artists in the Volcano School. As time permits between these treatments, he is also providing painting conservation to his other Art Care clients. Most recently he cleaned and varnished a couple of paintings by Shirley Russell.

Regional Reporter:
D. Thor Minnick

Los Angeles

Since 2011, LACMA has worked on contract with the city of Los Angeles to review and further develop the conservation plan for the Watts Towers, as well as provide daily maintenance. Led by senior conservation scientist **Frank Preusser**, conservators **Sylvia Schweri-Dorsch** and **Blanka Kielb** and research assistants **Israel Campos**, **Kimberly Blanks**, and **Colleen Boye** are at work on a variety of fronts, including materials testing, crack monitoring, condition documentation, and database development.

Thanks to funding from the Ahmanson Foundation, over the summer they have been joined by UCLA-trained conservators **Lily Doan**, **Molly Gleeson**, and **Suzanne Morris** in an educational mentorship program with Verbum Dei High School graduates **Hector Morataya** and **Jesus Real**. For two months, mentors and mentees are engaged in a variety of activities including a stabilization survey of selected sculptures, research into past treatments, and an infrared photography survey of the floor.

In September **Anne Getts** started a 1 year Mellon fellowship in textile conservation at LACMA. She is a recent graduate of the Winterthur/University of Delaware program in art conservation.

Paintings conservators at LACMA have been busy with permanent collection projects. **Joe Fronek** is completing the restoration of John Singleton Copley's *Portrait of a Woman*, which will be included in an upcoming exhibition of American paintings traveling to Korea. **Elma O'Donoghue** is completing the restoration of a 17th-c. colonial painting by Pedro Ramirez, *Marriage of the Virgin*. Mellon fellow **Bianca May** and Ahmanson advanced fellow **Susanne Friend** worked together on the treatment of a pair of 18th-c. Mexican paintings on copper by Nicolas Enríquez. Also, Ahmanson advanced fellow **Linnaea Saunders** treated a 1940 painting on Masonite by David Alfred Vaughan.

In September **Morgan Hayes**, from the Winterthur/University of Delaware program, began a 3rd year internship in painting conservation at LACMA.

Since June, **Amanda Burr** has been working as a contract paper conservation technician on exhibitions and loans for the Margaret Herrick Library at the Academy of Motion Picture Arts and Sciences. She also currently works on special collections at the UCLA book and paper conservation lab. A Seattle native now working and living in the Los Angeles area, Amanda has also completed a Mellon fellowship at the Huntington Library and recently concluded a six-month internship in paper conservation at the Los Angeles County Museum of Art, performing treatments and assisting with exhibitions.

Victoria Blyth Hill is working on the second rotation of thangkas for the Virginia Museum of Fine Arts. Working with her are **Cara Varnell**, textile conservator, and **Allison King**, a pre-program intern who is currently a student at Reed College in Portland, Oregon. Victoria attended the "Archives: Principles and Practices" two-day workshop in San Diego in early August.

Yadin Larochette had a busy summer preparing Native American costumes and textiles for two exhibitions, one at the Palm Springs Art Museum and the other to be held at the Museo de Oro in Bogota, Colombia with pieces from the Bowers collection. Presentations included a talk to Scripps College summer interns on the field of textile conservation and a lecture on caring for tapestries to members of the American Tapestry Alliance during a workshop held at Chapman University.

Rosa Lowinger recently attended a GCI-sponsored meeting on Outdoor Painted Sculpture. The meeting was held at the Metropolitan Museum and consisted of conservators, fabricators, artist's estate and foundation directors, and individuals from the paint industry. Rosa is presently working with the AIC on the second AIC-sponsored conservators trip to Cuba, scheduled tentatively for the Fall of 2013.

In Decorative Arts and Sculpture Conservation at the Getty Museum, **Julie Wolfe** hosted scientist **Virginia Costa** as a 3-month Getty scholar researching the use of metal coupons as sensors to determine the compatibility of materials for display. **Arlen Heginbotham** has

been working on the analysis and conservation treatment of the wood paneling in the Charles and Ray Eames House in Pacific Palisades, CA. The Eames House has recently been the focus of the Getty Conservation Institute's new Conserving Modern Architecture Initiative.

Katrina Posner with Julie Wolfe and **Brian Considine** just finished a joint treatment with **John Griswold** and his team of Henry Moore's *Bronze Form*. The aging polyurethane coating was removed using stripper followed by dry ice blasting, retaining the existing patina. The bronze was then recoated with Incralac.

Decorative Arts graduate intern, **Raina Chao**, has submitted a paper to *Studies in Conservation* with co-authors Arlen Heginbotham, **Lynn Lee,** and **Giacomo Chiari** titled "Materials and Techniques of Gilding on a Suite of French 18th-Century Chairs." Raina will be starting in September as the Andrew W. Mellon Fellow in Objects Conservation at the Philadelphia Museum of Art.

Department mountmakers **Mark Mitton** and **Adrienne Pamp** will be publishing a paper in the fall *AIC Journal* titled: "Cast Bronze Mounts for Temporary Exhibition at the JPGM." Mark gave a talk at the 3rd Int'l Mountmakers Forum on earthquake mounts for mid-20th-C. sculptures made of resin and other experimental materials for the Getty's Pacific Standard Time exhibition.

At a symposium held jointly by the Louvre and the C2RMF, "French bronzes: materials and techniques of bronze sculpture (16th – 18th C.)," **Arlen Heginbotham** presented a paper on the examination and authentication of gilt bronze mounts, and **Jane Bassett** spoke about the bronze casting techniques of Jean-Antoine Houdon and about the distinctive 'cut-back core' lost wax technique commonly used in France in the 18th C. Archetype Publications will publish the symposium papers.

Jane and Brian recently took a trip to Southern Germany to study historic methods of restoration of Medieval and Renaissance polychrome sculpture following the Getty's acquisition of a life-sized figure from Swabia, dated 1515.

Patty West and **Teen Conlon** report that South Coast Fine Arts Conservation Center has been very busy this year dealing with several objects damaged by vandalism. One polychrome statue from Santa Cruz Mission was dragged off the niche above the alter and smashed. Complicating the treatment was the fact that the sculpture had been extremely badly repaired and the original gilded surfaces painted over several times. It took 550 hours of scrapping with a scalpel just to remove the over paint. The whole project took a year to finish and is now back in the Mission Church. A similar vandalism occurred in Modesto California to a 19th- century statue at St. Stanislaus Church, which is now nearing completion.

Three interns, **Dinah Parker**, **Cindy Golson,** and **Samantha Hochhouser** joined them to help with the cleaning of three murals at St. John's Seminary in Camarillo. The studio is also hoping to complete the Santa Barbara County Courthouse Mural Room project this coming year. Funding efforts are in full swing to complete the job.

Regional Reporter:
Virginia Rasmussen

New Mexico

Conservation Solutions, Inc. (CSI) is pleased to have concluded the first half of 2012 with the award of a contract to provide conservation oversight for the façade rehabilitation of the West Block of the Canadian Parliament building in Ottawa, Canada. Conservation Solutions will have a team on site for the duration of this project, currently estimated to be ongoing over 5 years.

Successfully completed projects in 2012 include the Pan Am Globe at the Miami Science Museum, Miami, FL, exterior bronze at the National Academy of Science, Washington, DC, the main gate at Tudor Place Historic House and Garden, Washington, DC, the 1811 bell at St. James Church, NYC, the Grand Ghibellina marble sculpture by Gio Pomodoro at Kykuit, Sleepy Hollow, NY, the Mexican War Monument at the Pennsylvania State Capitol, Harrisburg, PA, the Bel Jon Mural at Pfizer Corporate headquarters, NYC, the US Grant Memorial on the National Mall, Washington, DC, the zinc statue *The Spirit of the Fighting Yank*, Belmont, NC, as well as a condition survey of the three spires at the US Air Force Memorial, Arlington, VA.

Projects underway or scheduled include the conservation of sculptures and architectural elements at Vizcaya Museum and Gardens, Miami, FL, consulting and surveying for the Menokin Project, Warsaw, VA, stone and bronze restoration at the west façade of the US Supreme Court, as well as at the Federal Reserve Building, Washington, DC, conservation of the Soldiers & Sailors' Monument, Watertown, NY, the Capitol Building 'El Capitolio', San Juan, Puerto Rico, and the Law Enforcement Officers Memorial, Washington, DC.

Upcoming publications and presentations include "Investigating and Restoring Decorative Finishes on Architectural Metals" (to be published Fall 2012 in the *Journal of Architectural Conservation*), a presentation entitled "The Restoration of the Guastavino Vault" at the Biennial Meeting of the Construction History Society of American in Boston, MA, and two presentations at the 12th International Conference on the Deterioration and Conservation of Stone at Columbia University titled "The Restoration of Marble Statuary at the New York Public Library," and "Outside the Canon: A Review of Unique Approaches to Stone Conservation."

Regional Reporter:
Silvia Marinas-Feliner

Pacific Northwest

Josh Summer has joined the staff at **Alice Bear** Conservation of Works on Paper as a pre-program intern.

In May **J. Claire Dean** was in Malawi doing site work and some training for staff at the Chongoni Rock Art Area World Heritage Site, Malawi, followed by additional field work in the Limpopo District of South Africa. Now back in the USA she will be working this summer in various locations including, central Oregon, on the Snake River in Idaho, and at the Hibulb Cultural Center, Washington State.

This August, as a part of a project funded by the National Science Foundation, the Seattle Art Museum Conservation Department is teaming up with **Tami Lasseter-Clare** and **Alice England** from Portland State University for on-site testing of an Electrochemical Impedance Analyzer which the Portland State University researchers have re-designed to enable field use. The goal is to see if the technology can be useful in determining coating deterioration on sculptures in the museum's Olympic Sculpture Park before there are visible signs of failure. The project will be shared with the public on billboards in the park and on the conservation page of the SAM website.

Liz Brown is also undertaking annual summer treatment of art in the park, including the repainting of a large Oldenburg/ van Bruggen sculpture with **Alex Obney** and his team from Fine Art Finishes, LLC. **Nicholas Dorman** attended the CAPS III London workshop at Tate Britain (see his conference review pp. 24-27), focusing on cleaning acrylic paintings, and he is researching and treating Jackson Pollock's *Sea Change,* thanks to project support from Bank of America. Nicholas is working with Kress Fellow **Katie Patton** and with **Elisabeth Mention** to inpaint *Venus and Adonis*, a large painting by Veronese and his workshop.

This spring and early summer **Corine Landrieu** has been working on a range of conservation projects for the Museum of History and Industry and for Seattle's Office of Arts & Cultural Affairs.

Regional Reporter:
Corine Landrieu

Rocky Mountain Region

Kyoung-eun Park spent the summer as a Wyoming Community Fellow in the conservation lab of the Buffalo Bill Historical Center. Kyoung-eun graduated from the Northumbria University Conservation program as a paper conservator. She treated many works of art on paper and supervised the housing of an archival collection from the Heart Mountain Interpretive Center.

Fran Ritchie, third year student in the Buffalo State College Conservation Program, was in residence at the BBHC as a Wyoming Community Foundation Fellow. Fran carried out intricate treatments on some of the specimens in the Draper Museum of Natural History. She also researched the use of various adhesives and backing materials for the repair of collection objects made of animal skin.

Jamie Christopher Gleason, third year student in the Buffalo State College Conservation Program, was in residence as a Rumsey Fellow. Jamie carried out complex treatments on some of the outdoor sculpture in the town of Cody, the bronzes in the Whitney Gallery of Western Art, and on the grounds of the Buffalo Bill Historical Center.

The conservation department of the Buffalo Bill Historical Center was fortunate to also have many talented pre-program interns in residence. **Emilie Kracen**, **Jaclyn Rubino**, **Katie Marie Belton**, **Joy Blosner**, and **Kate Catanio** spent many hours conserving objects, under the suervision of **Bev Perkins**, from the Plains Indian Museum, the Cody Firearms Museum, and the Buffalo Bill Museum.

Regional Reporter:
Paulette Reading

San Francisco Bay Area

Candis Griggs Hakim is saying goodbye to her Sebastopol apple trees and vegetable garden and moving to Doha, Qatar! After getting her kids settled, she hopes to keep busy with contract work, as the museum community is growing there almost as fast as the skyscrapers. Keep in touch with her at griggsconservation@gmail.com.

The Paper Lab at the Legion of Honor welcomes two advanced interns: **Laura Neufeld** from the Buffalo State University of New York and **Nora Velensek** from the Akademie der Bilden Künste Stuttgart.

The Objects Lab at the Fine Arts Museums of San Francisco has been busy with exhibitions. **Lesley Bone** just did an interesting installation with artist Beth Lipman via Skype, which was featured on the FAMSF blog.

Alisa Eagleston has just finished a survey of the ancient art collection on display and is about to embark on the delightful project of bringing twin daughters into the world. They welcomed back 2011 post graduate intern, **Tegan Broderick**, to fill in for Alisa. **Tracy Power** is consulting on some sculpture conservation projects, including a brass Roy Lichtenstein head that is on loan from the Anderson Collection.

Sarah Myriam Winston joined **Sarah Gates** in the Textile Conservation Lab of the Fine Arts Museums of San Francisco as a summer volunteer intern. Sarah Myriam is fulfilling her 150 hours of practical work for the Costume and Textiles Collection Management Program at CSU Long Beach. She is already employed in collections management at the Mingei International Museum in San Diego as well as being a textile artist known for her handweaving and use of natural dyes. She is on an intensive schedule to make safe storage for hats, shoes, costume, and rolled textiles, and she is completing all projects with enthusiasm and skill.

After a major facility renovation and organizational restructuring, the Oak-

land Museum of California reopened the art and history floors last year, with natural science slated for reopening in 2013. **John Burke**, who retired as chief conservator, was appointed director of the Collections and Information Access Center, which includes collections management, conservation, and registration activities. The museum conservation department is now managed by senior conservator **Julie Trosper**.

Current projects include digitizing and rehousing 645 Andrew Russell collodion glass plate negatives documenting the building of the transcontinental railroad in 1869, coordinated by paper conservator **Peng-Peng Wang** with consultation from **Gawain Weaver**.

The museum is also performing a second IMLS General Survey, over two decades after the original survey and 19 subsequent grant-funded conservation projects. The present survey, focusing on access and participatory practices, is coordinated by OMCA painting conservator **Pam Skiles** in consultation with **Jill Sterrett**, **Glenn Wharton**, **Pauline Mohr**, **Martin Salazar**, **Denise Migdail**, **Tom Fuller**, and **Victoria Binder**, along with **Debra Evans** and **Elisabeth Cornu** (who were also involved with the 1989 survey).

Other projects include a Museums for America technology grant focused on information asset management and collections CMS development, and the treatment and cataloging of 40,000 political posters from the 1960s for online delivery.

Regional Reporter:
Alisa Eagleston

Texas

In May **Jodie Utter** presented her technical study of Charles M. Russell's artists materials and watercolor techniques at "Material Memory" a joint symposium hosted by the University of Tulsa and Gilcrease Museum, as part of the new Helmerich Research Center. She traveled to Great Falls, Montana to oversee the installation of *Romance Maker: The Watercolors of Charles Russell* and to give several lectures. In July she presented her research at Inter/Micro, a microscopy symposium at McCrone Research Institute in Chicago, IL. Currently she is working on a series of articles about Russell's watercolor paints.

Tatiana Cole, a recent graduate from the Winterthur/University of Delaware Program in Art Conservation, will join the Amon Carter Museum of American Art in October as the museum's first postgraduate Fellow in Conservation of Photographs (2012-2014). Tatiana will work with **Sylvie Pénichon** on the museum's busy exhibition schedule and will conduct research on photographs from the collection.

Regional Reporter:
Ken Grant

An extra note

The general rule for Regional News is that an individual posts information about themselves, and that we include only occasional amounts of personal news. However, a member suggested the following post because he felt our readers would want to know about it.

Sott Blair, proprietor of Conservation Support Systems, has had a bumpy year or two. His wife Diane suffered a heart attack earlier this year (she is recovering well). A couple of months later, a mentally unbalanced intruder attempted a break-in of his home, with all the family, including his recuperating wife, briefly terrorized. It required police intervention and warning shots to subdue the intruder. They have also suffered the loss of two of Diane's brothers, a close friend, and most recently, the death a close friend's daughter. As well, for the last couple of years, they have been caring for his elderly mom. Our thoughts and sympathies go out to Scott and his family.

Publications

Conservation of Easel Paintings

Edited by Joyce Hill Stoner and Rebecca Rushfield
Routledge. 2012
928 pages.

There is no way to review adequately a book of this scope. It will become a standard reference for paintings conservators. *The Editor.*

Conservation of Easel Paintings is the first comprehensive text on the history, philosophy, and methods of treatment of easel paintings that combines both theory with practice.

With contributions from an international group of experts and interviews with important artists, this volume provides an all-encompassing guide to necessary background knowledge in technical art history, artists' materials, scientific methods of examination and documentation, with sections that present varying approaches and methods for treatment, including consolidation, lining, cleaning, retouching, and varnishing. The

Membership

WAAC welcomes the following new members and late renewals. Contact information is printed in the 2012 *WAAC Membership Directory* and the new members are listed here by name only.

Welcome or welcome back: Harriet "Rae" Beaubien, Francesca G. Bewer, Melissa P. Boe, Iris Boncales-Strauss, Jessica Burkhart, Kristin Cheronis, Christine Daulton, Christian de Brer, Christine Del Re, Nancy Fonicello, Jennifer French, Katherine Holbrow, Isabella Steward Gardner Museum: Objects & Paintings Lab, Sarah Kleiner, Mark Lewis, Allison McCloskey, Jeff Moore, Alison Tisue, Travers Newton, Ellen Pearlstein, Brunella Santarelli, Mary Schafer, George Schwartz, Tony Sigel, Thomas A. Snyder, Laleña Vellanoweth, and Katherine Zsolt.

Per each member's request, the 2012 WAAC Membership Directory was either mailed along with this issue of the WAAC Newsletter or has already been emailed to you as a pdf.

from our members

book concludes with a section featuring issues of preventive conservation, storage, shipping, exhibition, lighting, safety issues, and public outreach.

Conservation of Easel Paintings is a crucial resource in the training of conservation students and will provide generations of practicing paintings conservators and interested art historians, curators, directors, collectors, dealers, artists, and students of art and art history with invaluable information and guidance.

Foreword. Preface. Part 1: Technical art history, examination, documentation, and scientific analysis. Part 2: Methods and approaches for the treatment and care of easel paintings. Part 3: Preventive conservation, health and safety, outreach, and professional organizations. Glossary.

Drama and Devotion:
Heemskerck's Ecce Homo Altarpiece from Warsaw

by Anne T. Woollett, Yvonne Szafran, and Alan Phenix
J. Paul Getty Museum. 2012.
112 pages, 68 color and 21 b/w illustrations.

Maerten van Heemskerck (1498-1574) was one of the most active and inventive Dutch painters of the sixteenth century. Over the course of his long career, he created lively mythological scenes as well as large and dramatic altarpieces for guilds and smaller works for wealthy individuals. Many of his religious paintings were destroyed by Protestant iconoclasts in 1566. One of his extant masterpieces, the Ecce Homo triptych of 1544, once graced the family chapel of Jan van Drenckwaerdt, a wealthy merchant and sheriff, in Dordrecht's Augustinian church.

This unusually complete triptych, with its original decorated frame, was brought from the National Museum in Warsaw, Poland, for conservation treatment and scientific study at the J. Paul Getty Museum. Richly illustrated, this book documents the dramatic process of revealing the brilliance of a masterpiece, and it sheds light on the artist's technique, iconography, and the role of the altarpiece in the turbulent history of the sixteenth-century Netherlands.

The Painted King
Art, Activism, and Authenticity in Hawaii

by Glenn Wharton
University of Hawaii Press. 2012.
203 pages, 77 color illustrations.

The famous statue of Kamehameha I in downtown Honolulu is one of the state's most popular landmarks. Many tourists—and residents—however, are unaware that the statue is a replica; the original, cast in Paris in the 1880s and the first statue in the Islands, stands before the old courthouse in rural Kapa'au, North Kohala, the legendary birthplace of Kamehameha I. In 1996 conservator Glenn Wharton went to assess the statue's condition, and what he found startled him: A larger-than-life brass figure painted over in brown, black, and yellow with "white toenails and fingernails and penetrating black eyes with small white brush strokes for highlights. . . . It looked more like a piece of folk art than a nineteenth-century heroic monument."

The Painted King is the account of the conservation of the Kohala Kamehameha statue, but it is also the story of his journey to understand the statue's meaning for the residents of Kapa'au. He learns that the townspeople prefer the "more human" (painted) Kamehameha, regaling him with a parade, chants, and leis every Kamehameha Day. He meets a North Kohala volunteer who decides to paint the statue's sash after respectfully consulting with kahuna and the statue itself. A veteran of public art conservation, Wharton had never before encountered a community that had developed such a lengthy, personal relationship with a civic monument. Going against the advice of some of his peers, Wharton decides to involve the people of Kapa'au in the conservation of their statue and soon finds himself immersed in complex political, social, and cultural considerations, including questions about representations of the Native Hawaiian past: Who should decide what is represented and how? And once a painting or sculpture exists, how should it be conserved?

The Painted King examines professional authority and community involvement while providing a highly engaging and accessible look at "activist conservation" at work, wherever it may be found.

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:
Brynn Bender

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Send prepaid orders to:
Donna Williams

fulfillments@waac-us.org

The Multipurpose Mount
An Adjustable Support for Photography and Radiography

Introduction

In early 2011, a rare collection of ancient Dinetah pottery was brought to the Conservation Unit of the New Mexico Department of Cultural Affairs by the U.S. Bureau of Land Management and the New Mexico Office of Archaeological Services for assistance in preservation and analysis. For the documentation of the 50+ pieces, photography and x-ray analysis were planned to study their construction and repairs. The challenge was presented to the Exhibits Preparation crew to provide a mount that would safely stabilize and support the pointed-bottomed vessels while remaining unobtrusive during photography and radiography.

Design

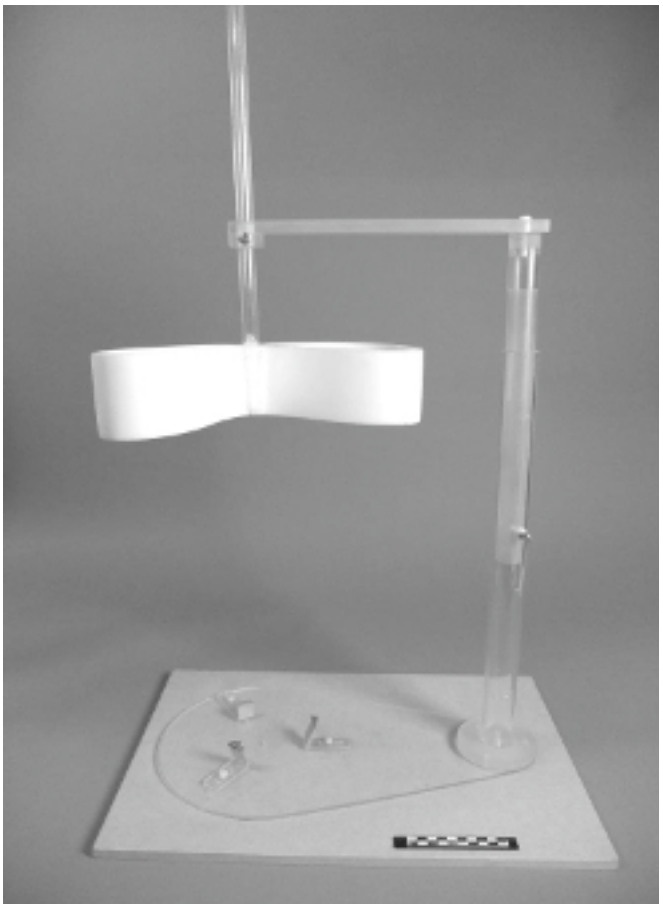
The design of any sort of object mount must begin with an assessment of the object and the desired use parameters. In this instance, one mount was to be the support for each of the objects in the collection during the analysis. Since this mount was intended for use during closely attended and controlled situations of limited duration, it did not need to have an unshakeable hold on the object. In addition, the mount needed to be readily adjustable to accommodate the wide range of pot sizes and shapes in the least possible time.

The pots ranged in size from less than 12" (30cm) tall and 6" (15cm) in diameter to greater than 20" (50cm) tall and 10" (25cm) in diameter. The mouth openings ranged from 4" (10cm) to 8" (20cm). The structure of the pots varied in their level of integrity, with repairs both ancient and modern of disparate levels of quality. The surfaces of the pots were often friable, with unstable deposits of carbon, soil, and conifer resins.

The parameters of use were determined for each process. For the photography of the pieces, the mount should hold the objects from a distance sufficient to be easily cropped from the photos. In addition, the portions of the mount that would be in contact with the object should be as hidden or unobtrusive as possible. The mount also needed to be a free-standing unit that could be placed on a turntable to allow the photographing of multiple views without further handling of the object. The proposed X-ray analysis also required that the materials used for the mount had a low radiographic signature.

To meet these core criteria, the decision was made to construct the mount of clear acrylic tubing, rod, and sheet with nylon fasteners used to join the components together. All contact surfaces to the objects were to be padded with a low nap sueded polyethylene fabric such as Ultrasuede® or with a fused surface polyethylene foam such as Volara®.

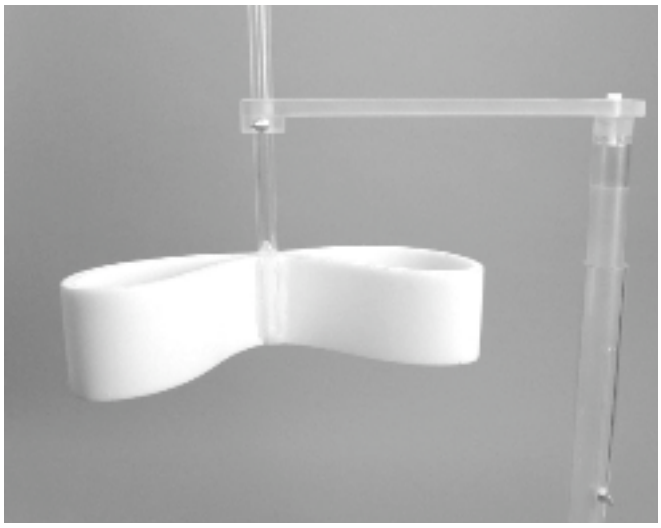
The mount was constructed of a base made of ¼" (6mm) clear acrylic plastic flat sheet approximately 18" (45cm) long by 10" (25cm) wide. A major support column was fabricated of 1 ½" (38mm) x 19" (48cm) acrylic tube, with a 1 ¼" (32mm) tube telescoped into the first. The outer tube was cemented to a lathe-turned acrylic foot that was mechanically fastened to the flat base. A slot was milled through the wall of the outer tube and a corresponding hole drilled and tapped into the inner tube to receive a ¼-20 (6x1.0) bolt, thus allowing the length of the telescoping column assembly to be easily adjusted and set.



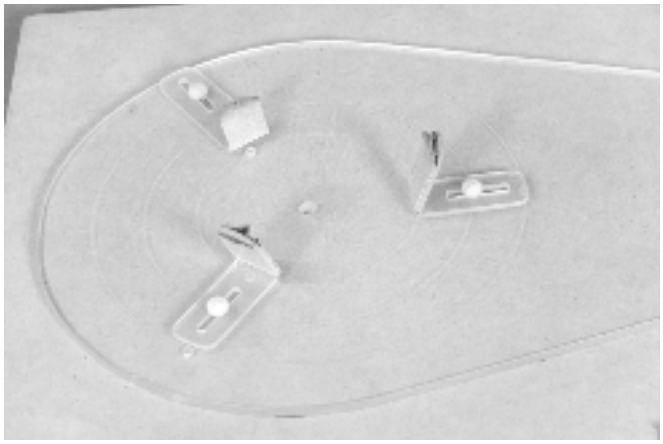
A horizontal arm of flat acrylic was bolted to the top of the column and extended over the position where the pot would be held. A ½" (12mm) acrylic rod was led vertically through a hole milled into the arm and a reinforcing block. An adjusting bolt in the reinforcing block allowed the rod assembly to be easily raised and lowered into the body of the pot.

In the original configuration of the mount, a 4" (10cm) diameter x ¼" (6mm) acrylic disk was attached to the end of the vertical rod to fit into the neck of the pot and define its position. It was quickly found that a single size interface could not accommodate the range of sizes and shapes of the mouths of the pots.

The solution was to fabricate a flexible figure-8 out of ¼" (6mm) Volara foam and attach that to the end of the vertical member with Hot-melt adhesive. The resulting structure could be easily compressed and lowered into the mouth of the pot where it expanded and gently supported the pot.



The platform was equipped with multiple concentric rings of tapped holes for machine screws to secure three acrylic stops that stabilize the lower end of the pot. They allowed the pot to be positioned on the base and the stops moved in to set the location and give support to the pot.



In some instances, it was found that the stops gave sufficient stability to the pot that there was no need to use the upper support, thus allowing for photographs with no visual intrusion into the pot mount.

The Mount in Use

After the mount was designed and built, it was handed over to the researchers and photographers. This usage by persons other than the builder showed the strengths and weaknesses of the design.

The overall function and adjustability proved to be intuitive and straightforward. Securing the object into the mount was easy to do and came off without a hitch. The few problems that did crop up mostly arose from the choice of materials and specific solutions to physical relationships in building the mount.

Because of the relatively thin dimension of the tubing walls, the nylon fasteners chosen for adjusting the height of the main column quickly degraded due to the pressure on the few threads that were in use when tightened. These were replaced with steel fasteners for durability and the nylon fasteners would only be used during x-ray analysis.

It was found that the angle of the adjustable stops that position the bottom of the pot did not always match the angle of the pots. When the photographers worked with the pot, they would occasionally rotate the pot within the acrylic stops to get a more favorable photograph. Even though these stops were padded with Ultrasuede, there would occasionally be a small amount of abrasion damage to the surface of the pot. The plan is for the next iteration of the mount to have a jointed or rounded contact surface on each stop, as well as including a thicker padding such as Volara foam.

Conclusion

Building a single mechanism to serve multiple purposes is always an exercise in compromise. This design satisfied the defined purposes reasonably well while having a high degree of usability with limited specific training to the users. If an additional example of this mount would be made, the knowledge gleaned from the usage that this one received would improve the usability and durability of the new version.

The Organic Analysis of Artworks: Early Challenges and Future Directions

In learning from our own past, we can look towards new areas of research as well as areas that are in need of revisiting. During a group discussion on the role of science in art conservation, David Bomford, newly appointed Director of Conservation at the Museum of Fine Arts in Houston, shared his sentiments regarding the future direction of collaborative research:

> In terms of traditional analysis of works of art, with old master paintings, pigments have been the most important thing- but that's because pigments are what we can analyze most straightforwardly. Actually, the medium is equally important but much more difficult to analyze. It's only been in relatively recent times that we've had successful and reliable medium analysis. There's still an awful lot about medium analysis we don't understand. I think there are analytical techniques that we are not yet capable of doing that will yield important information (Drayman-Weisser et al. 2010, 22-3).

The increased sensitivity of today's instruments and our more complete understanding of the complexities of materials analysis have revealed that we may need to re-examine certain areas of conservation science. Pigment interactions with organic binders, the analysis of complex mixtures, detection limits, and the comparison of analytical protocols and instrumentation are some of the more important subjects requiring our attention. In the twenty-first century such topics warrant closer inspection from scientists and conservators who are working in tandem.

Conservation science has unique complicating factors that do not plague other scientific fields. Some scientists working in academia or in industry tend to avoid consulting references that are over a decade old. Often there is more than one laboratory attempting to answer the same question, allowing scientists to build upon the work of their colleagues. Experiments performed 10 or 15 years ago may use technology or analytical protocols that have since become irrelevant or outdated.

This approach, however, would be devastating for the conservation community. Such a constraint would limit the literature that could be reliably cited to a small fraction. While students and practicing professionals should not be discouraged from consulting older references, they should try to surmise how a similar research project or experiment would be performed today. An awareness of our instrumental limitations, past and present, will better inform us as we move ahead.

The evolution of detectors and camera systems used for Infrared Reflectography is a perfect example. There are many paintings where no underdrawing could be discovered using the older silicon CCD detector (approx. 750-1050 nm) technology; this may have led some to the erroneous conclusion that a particular painting did not possess such features. However, beautiful, crisp preliminary underdrawings can now be captured using more current systems such as an InSb detector. These are capable of a much wider range (approx. 1000-3000 nm) and at a far higher resolution.

IRR systems have evolved, as have other analytical instruments, particularly those used to answer questions relating to organic materials thus increasing our knowledge bank of past materials. There are a handful of books and articles that outline this progression in conservation science.

The Getty's 1999 publication *Infrared Spectroscopy in Conservation Science* provides a thorough historical summary of the technology beginning as early as 1800 in the first chapter. This small section presents the average reader with the background, context and, more importantly, when and how the technology was introduced to the field of conservation.

Another example is the analytical section in the soon to be published *Conservation of Easel Paintings* edited by Dr. Joyce Hill Stoner and Rebecca Rushfield. This text incorporates an account of the entire history of various technologies including X-Ray analysis (XRF, XRD, SEM-EDS, etc), chromatographic analysis (e.g. GC, LC), FTIR, and analytical methods that are newer to our field (e.g. SIMS, MALDI). Dr. Jilleen Nadolny's section traces the relationship between art conservation and the sciences beginning as early as 1780. The following chapter, co-authored by conservation scientists Dr. Joyce Townsend and Dr. Jaap Boon, places every instrumental method into context, explaining how each relates to the history of paint analysis.

The book *The Organic Chemistry of Museum Objects* written by pioneering scientists Dr. Raymond White and Dr. John S. Mills, first published in 1987, has served as a seminal textbook in conservation laboratories and graduate programs throughout the world. Mills and White were the first to apply chromatography coupled with mass spectrometry to the vast and complicated world of art materials.

Their second chapter provides a comprehensive overview of several chromatographic methods including thin-layer (TLC), gas-liquid (GLC or GC), pyrolysis (Pyro-GC), and high performance liquid chromatography (HPLC). Many of the challenges and ambiguities that plagued Mills and White throughout their years of research, however, are less well known but help illustrate the challenges of early organic analysis.

Both scientists were initially limited to a rather simple gas chromatograph that was located in the bowels of the National Gallery in London. White's FAIC oral history interview provides an eye-opening account of his first impression of the laboratory. England's Secrets Act at the time had prevented him from visiting the government run facilities until he had officially accepted the position:

> […] and then I was taken on a tour of the laboratory and I was absolutely horrified, absolutely horrified because it was in the lower Duveen Rooms, what is now the big unloading bay. That was the main chem-

> istry laboratory. This big huge cavernous area, with great high ceilings and, a vast area, and then the series of offices dotted round, and then the simply huge sort of hole like area which was piled up to sort of above your head with bits of government surplus and old bits of equipment that had been coupled in to make, you know, to make little research projects and so forth, these whole crates.
>
> And, when I got to the chemistry laboratory I was just simply appalled because there was a gas chromatograph, quite a primitive gas chromatograph, a PAN gas chromatograph well dating from the early '60s and so forth. […]…if you could keep the old PAN gas chromatograph working and so forth, you know, in terms of leaks and some custom couplings and that weren't too sophisticated as they are now, that was one thing.
>
> Then, we didn't really have proper integrators, so if you didn't, as a matter of experience and judgment get it about right then some of your peaks would sail off the paper and then you wouldn't be able to do the palmitate stearate and the azelate to palmitate ratios and so forth. So, it calls for very fine, there was a need for very fine judgment.
>
> And, the most annoying and challenging things was we had an old Honeywell chart recorder and that was the only means of recording the data in those days, which had a sort of ink reservoir which regularly blocked up or just stopped running in the middle of the trace and so forth. So, it was an absolute nightmare, an absolute nightmare to ensure that you actually got the results for a run. And, John was absolutely superb at handling that machine, that beast (White 2009).

White expressed his wariness towards the early GC and attributed most of the early success with the PAN gas chromatograph to John S. Mills. It was not until two decades later that the National Gallery London would receive their first mass spectrometer, a Kratas MS-25. This was a major event, and it changed things immensely.

Mass spectrometers allow for specific ion/molecular identification instead of simply relying on measuring the time it takes for a material to pass through the column. MS techniques permit the identification of a range of molecules that differ in both size and class by assigning a characteristic mass/charge (m/z) ratio to each species. Eventually this will allow scientists to organize a database that is similar to the IRUG (Infrared and Raman User's Group) database used for FTIR spectra, aiding analysts in matching unknown samples with reference materials.

Even with the arrival of the new Mass Spectrometer, Mills and White were still faced with challenges. Any impurities present in the sample or other unforeseen issues (leaks, column bleed, etc) would result in a compromised gas chromatograph, an issue that still plagues modern day scientists:

> [The MS] was integrated with a Perkin Elmer gas chromatograph. It wasn't by any means a perfect machine, because the weakness was the actual interface between the GC and the mass spec. In those days, it was a real problem finding couplings that would, you know, would not leak and would be able to withstand vacuum and varying, you know, high temperature and so forth.
>
> Unfortunately, it used silicone, a silicone silica mastic composition for the jointing between the lining from the GC into the…and then it had a sort of molecular separator to pump off the gas and so forth. And, that was always, that was a little bit of a weak, a weakness of the system. Because we started, then started doing work on triterpenoids, and of course, one needed the interface at quite a high temperature and we used to run it at about 280, something like that.
>
> And, unfortunately silicone Poly Mount tends to gradually break down and so one was constantly having to remake and reseal the system. So, it was quite a nightmare keeping that system working. But, when it did work it worked very well (White 2009).

White's interview reveals a candid attitude in discussing what was successful and what was not. White also discussed his reservations with Thin Layer Chromatography: he stated "TLC really wasn't of any great use and sometimes gave sort of falsely possible things"(White 2009). Such candor is rare in conservation literature. The resultant data from a failed experiment may be as important to the field as a successful one. Perceived failures may prevent others from wasting precious samples trying to perform similar tests.

There are few detailed descriptions of sample preparation in conservation literature in contrast to articles found in scientific journals. This topic is tricky and complicated and may explain why Mills and White chose to limit this section to only three paragraphs in their book. Samples can be subjected to specific solvents or mixtures of solvents, periods of heating, anoxic conditions, and finally a specific chemical reagent, often referred to as the "derivatizing" agent. These compounds, of which there are dozens, can be used to chemically alter classes of molecules that exist in the sample (e.g. lipids, resins, proteins, etc) facilitating separation as well as recognition during analysis.

While this may sound like a simple, straightforward process, this is hardly the case. For example, exchanging one derivatization agent with another or performing a reaction in the presence of oxygen can significantly alter the final results, making some protocols more successful than others. As our instrumentation continues to become more complicated so too do our options for sample preparation and manipulation.

Although these multiple parameters may seem daunting, they should not discourage conservators from pursuing questions relating to organic analysis. Conservation scientists have been working to come up with very specific (and often elaborate) protocols that are tailored to meet conservators' needs. Two examples are shown in Figures 1 and 2 (Colombini et al. 2010, 718; Sutherland 2007). The drastic difference between the two methods is immediately apparent.

Figure 1. The flow chart picured below represents a sample preparation protocol developed by conservation scientist Michael Schilling at the Getty Conservation Institute. Prior to subjecting the sample to analysis using GC-MS, the analyst can choose between two different extraction methods to look for a) fatty acids, or b) fatty acids, proteins, and glycerol.

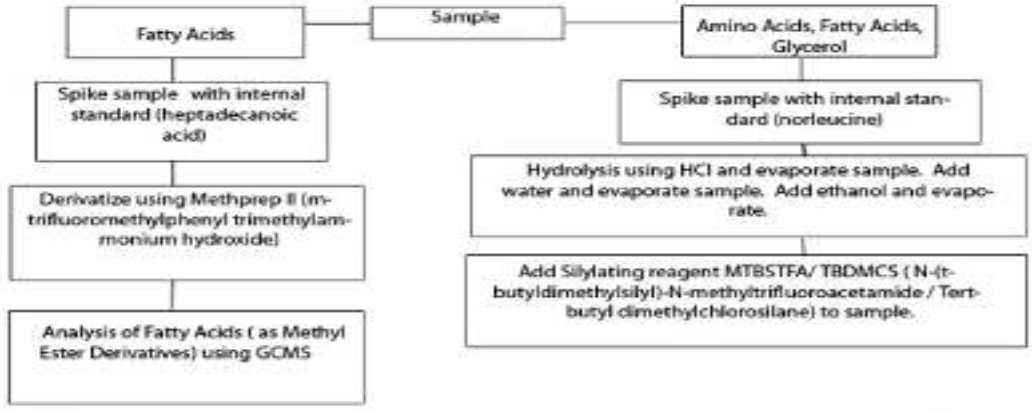
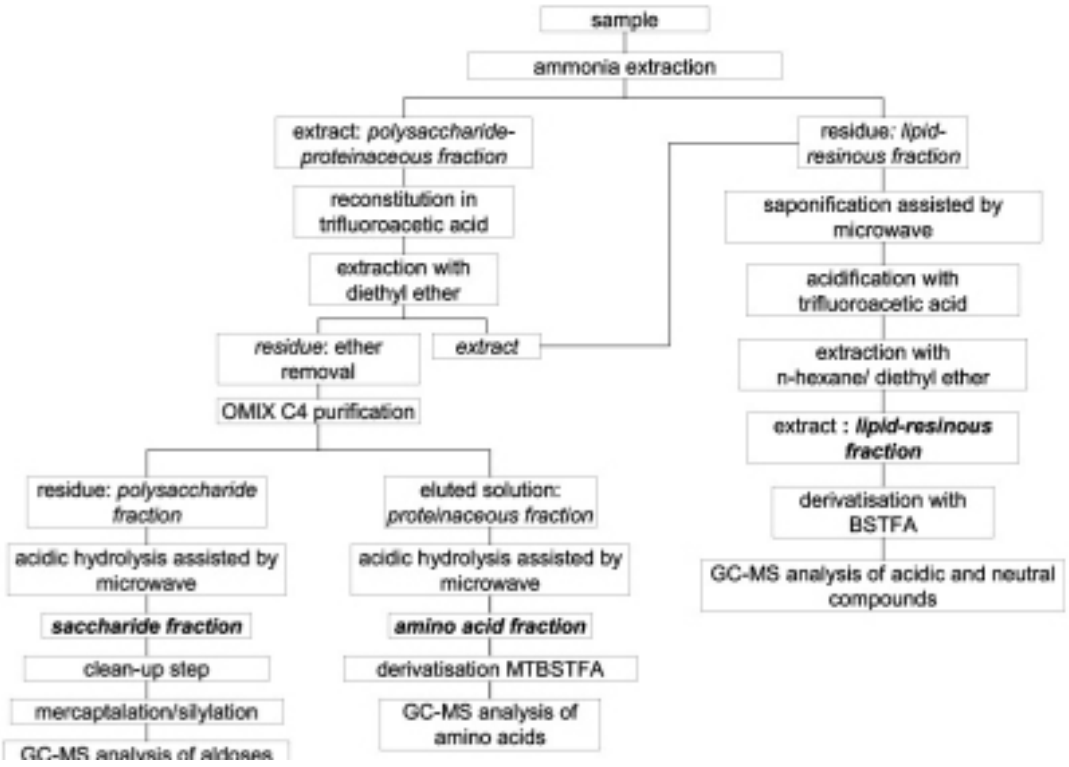


Figure 2. The flow chart below illustrates a protocol developed by scientist Dr. Maria Perla Colombini at the University of Pisa. This complicated protocol is designed to extract faty acids, resins, waxes, amino acids, and polysaacharides from a single sample. One drawback to using more elaborate extraction methods is the size of the sample. Larger samples are often required for extensive protocols when preparing for analysis using GC-MS.



Not every conservation science laboratory employs the same protocol or even has the same instrumentation. Scientists have recently come up with an efficient way of evaluating individual approaches to the analysis of artworks. In a "round robin exercise," one laboratory prepares a sample (or samples) that will serve as the unknown ("blind sample"). The blind sample is consequently sent out to a number of different conservation science laboratories and participants are asked to report back with what they are able to find.

Results from one of these "round robin exercises," as they are called, were recently published in 2011 and revealed some interesting findings (Colombini et al. 2011). In Figure 3 all eleven laboratories reported slightly different results, with some identifying components that were not actually present in the sample, which was for a 17th-century medical ointment (Colombini 2011, 1858).

Work is still needed to assess and compare various protocols and analytical approaches. This is precisely where conservators can offer their service and expertise. There are so many variables to consider, and scientists have little time to devote to preference sample preparation.

As instruments have become more sophisticated, we can no longer simply rely on generic reference materials. In the case of easel paintings, for example, one must take into account interactions between substrates, ground layers, pigments, surface coatings, and any restoration materials. While references will never serve as accurate substitutes for samples collected from actual artworks, questions regarding organic materials must still be placed into context. Modern materials may not really resemble the historical product even if they are chemically similar. For example, 18th-century lead white is very different morphologically from the 20th-century version despite being of a similar chemical makeup.

Dr. Leslie Carlyle, now the Head of Conservation at the Tate, was one of the first to emphasize the importance of using historically accurate art materials for scientific research. Nearly a decade ago, Carlyle began the HART project (Historically Accurate Reconstructions Techniques), one of the most comprehensive projects involving artists' materials and recipes to date (The HART Project 2005). Her research has inspired others to re-evaluate older notions relating to reference materials. If the primary objective is to study the nature of the drying oil, simply painting out oils on glass slides is not enough. Artificial and natural aging is also important to consider as aged samples often exhibit different chemical and physical properties than freshly prepared materials.

On the other hand reconstructions still provide the best means to test current theories and the limits of our scientific instruments. One interesting example is the relatively recent "debunking" of the copper-resinate myth, specifically the preparation of the pigment. Artworks possessing copper-containing green glazes were analyzed and found to be devoid of individual pigment particles. Early scholars believed that these copper glazes were made by dissolving verdigris in heated resin or a resin-oil varnish. Reconstructions of verdigris paints, however, showed that even without heating, the copper pigments would react with the surrounding binding medium and eventually turn into a transparent layer lacking discrete pigment particles (Van Eikema Hommes 2005).

Figure 3. Pictured below is a chart summarizing the results obtained from a round robin exercise conducted in 2011. Eleven conservation laboratories were asked to identify the components in a blind sample that consisted of silver litharge, pig suet, olive oil, galbanum, beeswax, pine resin, and colophony. These ingredients were combined to reconstruct a 17th-century recipe for a medical ointment.

Laboratory	Analytical technique	Identified or hypothesised materials
1	FTIR	Plant oil (olive oil), beeswax, aromatic compounds
2	FTIR, XRF	Plant oil, beeswax, aromatic natural resin, $PbCO_3$
3	Micro-Raman, SERS	Animal fat, (pig suet), colophony or pine resin, galbanum resin, PbO (litharge and massicot), $PbCO_3$
4	NMR, HPLC-APCI-MS	Plant oil (*almond* or olive oil), animal fat, beeswax, Pinaceae resin, galbanum resin, *wine*
5	Py-GC-MS	Plant oil, beeswax, diterpenoid resin
6	GC-MS, SPME-GC/MS	Animal fat (pig lard), beeswax, *Pinus sylvestris* resin, *triterpenoid compounds*
7	GC/MS	Plant oil, animal fat, beeswax, Pinaceae resin
8	GC/MS, FTIR	Plant oil, beeswax, Pinaceae resin, $PbCO_3$
9	GC/MS, micro-Raman	Plant oil (*almond* or olive oil), animal fat, beeswax, Pinaceae resin, $PbCO_3$
10	GC/MS, HPLC-Q-ToF MS, FTIR, micro-Raman	Plant oil, beeswax, diterpenoid resin, PbO
11	HPLC-ESI-HR Tof MS	Plant oil (olive oil), beeswax, Pinaceae resin, *sandarac resin*

Materials not present in the unknown ointment are in italics

A second example demonstrating the important role of reconstructions involves a project carried out at the Tate Britain. A primary goal of the study was to identify copal resin in a number of well-documented Pre-Raphaelite paintings. Copal was a common 19th-century paint and varnish additive and was frequently used by painters belonging to the Pre-Raphaelite Brotherhood (Townsend et al. 2004, 47-8).

However, few of the samples collected from this group of paintings produced results that conclusively confirmed the presence of copal (Townsend et al. 2004, 62-7). This can be attributed to a number of factors including insufficient sample size and pigment interference. Fortunately Dr. Leslie Carlyle created a number of paint outs, reconstructing techniques and recipes used by these 19th- century artists. The very high refractive index of these copal-containing reconstructions closely matched the refractive index of samples taken for the actual paintings corroborating the use of copal resin (Townsend et al. 2004, 77-8).

The reconstructed paint references may be useful in answering future questions such as testing the detection limits of commonly used analytical instruments. Such a study would help investigate why copal was not successfully identified in the samples taken from the paintings. Analytical protocols used for the identification of binding media can only be improved when such limitations are explored.

A modern counterpart to Mills and White's seminal textbook did not appear until fairly recently. In 2009, Dr. Maria Perla Colombini and her Italian colleagues published a text that is nearly three times the length of Mills and White's *The Organic Chemistry of Museum Objects*, a physical testament to the exponential growth in scientific advancements that has occurred since 1987. Colombini's book has much to offer conservators.

The book's title, *Organic Mass Spectrometry in Art and Archaeology*, reflects the fact that by the 21st-century MS techniques had become the standard method used in the organic analysis of art objects. The book is organized by individual analytical techniques; each chapter includes an exhaustive bibliography and relevant case studies that may be of great interest to conservators. Colombini also delves into important topics such as derivatizing agents and detection limits.

Finally, Colombini and her colleagues do not hesitate to point out the dangers of relying too heavily on certain concepts, concepts that are based on the work of early pioneers such Mills and White. The reliance on fatty acid ratios for the identification of oils and proteins is a perfect example.

Scientists at the National Gallery in London have recently found that these ratios can be altered by the presence of certain reactive pigments (Higgitt et al. 2005). Colombini's team has also stressed that complicated mixtures (e.g. egg yolk mixed with drying oils), contamination from restoration materials, and even environmental factors can produce results that are misleading, resulting in misattribution (Colombini et al. 2010, 723). The various methods of refining oils such as water-washing, sun bleaching, and heating can also alter fatty acid ratios and while some laboratories have made considerable efforts to explore such relationships there is still much that remains to be explored.

Lastly, it may be worthwhile to mention the application of chemometrics to cultural heritage studies. Although archaeological conservators and conservation scientists may be familiar with chemometrics (also referred to as multivariate analysis or MVA), this term is relatively new to most practicing conservators.

The growing sophistication of non-destructive analytical techniques such as hyperspectral imaging, reflectance FTIR, and XRF can perhaps explain why MVA is now appearing more often in studies associated with conservation science. Such techniques combine statistics and complicated algorithms with computer programs, helping analysts to sift through large amounts of data in order to identify trends and patterns. As instruments become more sensitive and robust, conservators and scientists will continue to face exhaustive amounts of data.

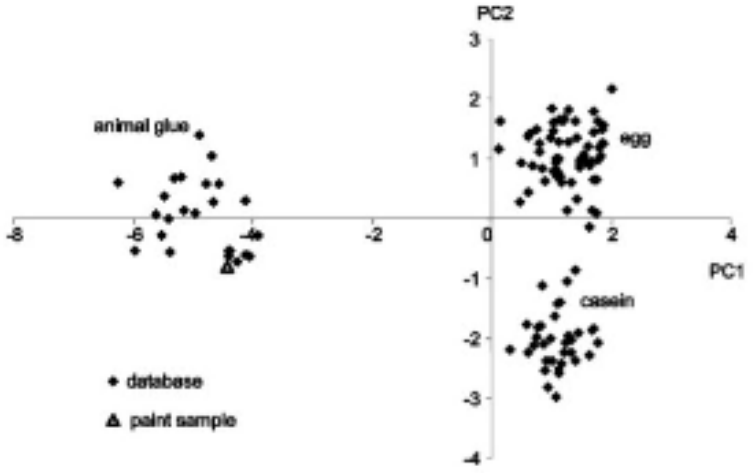


Figure 4. Pictured at left is an example of a plot generated using Principal Component Analysis (PCA). The plot depicts the relative amino acid percentages of glue, egg, and casein containing paint samples (non-aged and UV aged). Samples of unknown composition can now be compared to the cluster groups obtained using the PCA plot, assisting with the identification of proteinaceous materials in painted works of art.

In the last decade or so, computer programs have been designed to automatically perform MVA techniques, alleviating scientists and mathematicians from the burden of executing lengthy statistical computations. These programs can extract meaningful information from complicated datasets, revealing relationships that were previously unrecognized and assisting with identification and classification.

With all that is demanded of conservators, it may be too much to ask that we add such a complicated skill to an already over-sized list. Since the year 2000 there has been an exponential increase in the use of MVA techniques in the literature, specifically principal component analysis (PCA), an example of which can be seen in Figure 4 (Colombini 2010, 715).

Until conservation professionals develop an awareness of these methods, it will be increasingly difficult for some to comprehend some of these journal articles and thus exploit some of the benefits that MVA can offer.

Understanding the evolution of conservation science can help to better inform our research abilities and also foster a greater respect for our early pioneers in the conservation field. Their stories should provide inspiration for future conservation professionals even as technology continues to progress. Einstein urged people to "learn from yesterday" while at the same reminding us "not to stop questioning" (Darbellay et al. 2008, xix).

Like other fields that are closely tied to the sciences, the conservation field should also adhere to these tenants. By working together, scientists and conservators have been able to overcome past obstacles in an effort to bring new information to the conservation community, to scholars, and to other art enthusiasts. The formation of scientific databases devoted to art materials and the production of comprehensive publications prove that conservation professionals have surmounted some of the challenges posed by an ongoing technological revolution.

The analysis of organic materials, however, continues to test our limits. Collaboration among scientists and conservators is a prerequisite if we are to ever develop a comprehensive understanding of organic materials that are encountered in artworks and cultural heritage sites.

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The Cleaning of Acrylic Paint Surfaces 3 London workshop

Background

I should start this review with a disclaimer that it is thoroughly disconcerting to write *anything* whatsoever about a subject to which so many smart people have dedicated so much time and thought. The existence of this review is due to a fit of acquiescence that took place when Chris Stavroudis caught me off-guard as I arrived at the workshop on the first morning and said "You *are* going to write a review for the *WAAC Newsletter*, right?" Accordingly, all errors, generalizations, or omissions in my review are attributable to my lack of expertise or comprehension, rather than any shortcomings of the instructors.

In early July, eighteen conservators from eleven countries gathered together with four instructors at the Tate conservation department in London to learn about, undertake tests on, and discuss the cleaning of acrylic painted surfaces. Organized by the Getty Conservation Institute, Cleaning of Acrylic Painted Surfaces 3 (CAPS3) followed two invitation-only CAPS colloquia in Los Angeles (2009) and New York (2011).

The previous meetings convened experts in the conservation of contemporary paintings to brainstorm on issues surrounding the cleaning of modern paints, with particular emphasis on acrylics which are now so firmly established both on the artist's palette and for other commercial applications. There was a great response to the posting of the 2012 CAPS workshop, with the number of applicants far exceeding the number of available places - an imbalance that indicates how eagerly conservators wish to learn more about new developments in this area of our work. For the first time, in addition to paintings conservators, CAPS 3 included conservators from allied fields who also encounter acrylic paints.

Hosted and taught by Tate's Dr. Bronwyn Ormsby, Dr. Tom Learner from the Getty Conservation Institute, Professor Richard Wolbers of the University of Delaware, and conservator Chris Stavroudis, and organized by the instructors and Tram Vo of the GCI, the workshop presented the remarkable body of new material that has been developed in this arena in recent years. The workshop instructors represent several of the institutions (and individuals) that have invested considerable resources in this research.

In preparation for the meeting, the attendees digested a weighty list of background reading before arriving at the Tate conservation facility in Tate Britain on July 3rd (with the help, in some of our cases of many hours of jet-lag induced insomnia). While it isn't possible to credit fully the teams of scientists and conservators who were mentioned by the instructors during this short review, it should be made clear that the scholars mentioned below, and many more who have undertaken studies in this field, were given full and proper credit by the instructors throughout the workshop.

Introduction to acrylic paint studies

During the first morning session, Tom Learner delivered a comprehensive review of the background that lead to the CAPS series, first of all addressing the issue of need. The flourish of work in this area over the past two decades had been prompted by the proliferation of materials available to artists and works of art that were beginning to age. There was also a general concern, despite the availability of commercial technical literature, about the relative paucity of information about acrylics within conservation training and in our professional literature. As Tate director Nicholas Serota stated in the 2007 joint Axa Art Insurance/ Tate publication, *Caring for Acrylics:*

"The need to explore conservation issues surrounding acrylic paints has recently become more pressing as early acrylic works are now approaching fifty years old. Despite the frequent occurrence of acrylic paint in collections, conservators have access to very little information on how acrylic paints might alter with age, or how they are affected by conservation treatments such as surface cleaning."

To these points about what *happens* to acrylic paints over time or because of conservation problems, we might add a lack of widespread appreciation within our field for exactly what acrylics *are*.

Because of this need for information, a project entitled Modern Paints Uncovered (MPU) was initiated in 2002. The objectives were to improve analytical methods so that there might be better understanding of the physical properties and surface characteristics of modern paints and to examine the effects of cleaning. As would later be the case with CAPS, the organizers sought to make treatment and the consequences of treatment central parts of the research. MPU was a collaboration between Tate, the Getty Conservation Institute, and the National Gallery of Art (Washington, DC), and it culminated in a landmark conference in London in 2006 that was presented and attended by artists, paint manufacturers, scientists, curators, and conservators.

Following the MPU conference something of a sense, if not of inertia then, perhaps, one of discomfiture, descended around the issue of surface cleaning acrylic paintings. This concern centered on the complex of technical and ethical issues pertaining to the removal of surface soiling and the range of constituents within acrylic paint that may find their way out of the bulk paint film and onto the surface.

Despite the apparent impasse, what was clear was that it would be necessary for us to better understand and control dirt removal from acrylics, and for us to assess potential short- or long-term harmful consequences to the paint from cleaning. It was also clear that ongoing studies would need to continue to negotiate a delicate balance of scientific investigation, ethical concern about the removal of paint film components, and empirical evaluation and documentation of test treatments.

A space-time continuum of pH and conductivity *by Nicholas Dorman*

The desire to move ahead using the particular format of the CAPS series, rather than simply the dissemination of scientific findings, was in good measure determined by the tenet that conservators, as well as their scientist colleagues must be closely involved in the research. In this way, there might be the best chance for the field to build viable methodologies based on the combined achievements of scientific testing and practical experience. As Tom stated unequivocally at the outset of the workshop, "Conservation has a craft element, and this should proceed together with science."

Other key concerns that emerged from the MPU and earlier CAPS colloquia included identifying how best to disseminate findings, practical treatment issues, preventive conservation issues, ethical questions, and a theoretical framework for cleaning as well as the need for an open and collegial forum for sharing ideas and experiences.

Acrylic paint basics

Tom went on to discuss acrylic paint basics, from the introduction of Magna acrylic solution paints in the late 1940s to the acrylic emulsion paints that emerged as artist colors in the 1960s. He citing examples of specific artists and their reasons for being attracted to these new paints, from rapid drying to their permanence, the pleasant working properties of water-borne paints, and their ease of use.

The molecular structure of the acrylic polymer components were discussed along with the effect of the particular proportion of monomers (and additives) in determining the glass transition (Tg) temperature that dictates how viscous or tacky a paint film is at a given temperature. For modern artists' acrylics, the combination of monomers is balanced to provide paint with a Tg that is set high enough to avoid tackiness and low enough to avoid brittleness at normal room temperatures.

Next, the role of additives within the liquid paint was discussed. These include surfactants to keep the polymer components suspended in solution, pH buffers to maintain optimal conditions for all components, anti-foaming agents to prevent bubbles, thickeners for that nice buttery (Smart Balancey?) texture, freeze-thaw agents, coalescing solvents to help with film formation, biocides, pigment dispersants, and wetting agents to prevent clumps and precipitation and to make sure the original preparation is thoroughly incorporated within the water phase of the paint.

The work of many of these components has already been accomplished once the paint film dries. How much remains and where it resides within the dried film, however, beomes an interesting issue. Examination of dried acrylic films has revealed that a less than homogeneous acrylic film may be formed during drying, with some of these additives becoming pushed into pockets within the film from which they can subsequently move out onto the dried paint surface when conditions permit.

Attendees were introduced to recent research findings with an account of how acrylic emulsion (and solution) paints behave when exposed to water, solvents, temperature and relative humidity changes, and soiling. Tom discussed aging and mechanical properties of acrylic emulsion paints and grounds and described tests that were undertaken using dynamic mechanical testing, immersion, and light and heat aging that had helped researchers to explore the physical and chemical properties of the films and their aging characteristics.

So at this early point in the workshop, a picture emerged of acrylic as a paint that is durable and flexible within its comfort zone but one that may crack, swell, or imbibe dirt or blister when pushed, and one that contains an inherent ethical and practical challenge in the form of surfactants. We gained a clear sense that preservation of acrylic paint films requires better-defined parameters for both preventive care and treatment.

What also became apparent was one of the most bewildering facts for the conservator seeking a framework for treating paintings: the heterogeneity of acrylic paints. There may be considerable differences in film softness or surfactant levels from color to color and, furthermore, what is ostensibly the same color but from different manufacturers, may exhibit very different responses to cleaning solutions or environmental conditions.

Cleaning chemistry

In the next session, Chris Stavroudis explained the chemistry of liquid cleaning. His talk introduced the concepts of buffers, conductivity, and ionic strength, with which attendees of his Modular Cleaning Program workshops (and readers of this *Newsletter*) will be familiar. For acrylic cleaning, the emphasis was on aqueous systems and chelating agents, buffers, and surfactants, each having important roles to play in the various cleaning solutions which we tested throughout the week.

Chris developed the notion of reducing paint swelling by discrete methods, and he described how conservators might use emulsions to control the action of water used for cleaning. In addition to conventional emulsions, Chris discussed microemulsions where the water phase is incorporated much more intimately with the solvent phase. He also discussed the polymeric emulsifier Pemulen TR2, a material that allows the simple formulation of oil in water emulsions without the need of a surfactant.

For both the Pemulen-based emulsions and silicone microemulsions, he noted that the aqueous phase could be built with the MCP. (See *WAAC Newsletter*, Vol.34, No.2, May 2012 and Vol.32, No.3, September 2010 for articles by Chris, Richard, and others about Pemulen.)

Tests on the paint samples

During the ensuing practical session, attendees studied acrylic color samples on prepared canvas pieces. This examination revealed the great variety among the colors; how various colors from a single manufacturer displayed different stiffness, matteness, gloss, bubbles, or crisp or dull ridges at the edge of the samples. Some samples were perceptibly "greasy" with surface surfactant. The test swatches allowed us to see for ourselves the fact that different manufacturers incorporated varying ingredients into their colors so, for example, the cadmium orange of one manufacturer displayed quite different surface characteristics from the cadmium orange produced by another company.

The first tests undertaken by the workshop attendees were simple swelling tests with drops of water, buffered water, carbonated water, etc.

After testing surface conductivity of each paint sample using little slithers of agarose gel and a conductivity meter, drops of the range of test solutions were then placed on the surface of the samples and a number of phenomena were observed.

The manner in which a drop spread on the surface or held its form was a helpful indicator of the presence of surfactant on the surface. We were also eager to see which test areas swelled most. Many colors were affected by swelling; the 20mS/cm (20,000µS/cm), pH6 water swelled most colors less than other solutions.

Although, during an actual treatment, the action of rolling a swab over a painted surface is quite different from letting a drop sit on a paint surface for a minute, the marked response that some films exhibited made an impact on many of us. In addition to displacing surface surfactants, the drops of water caused the test area on some films to form quite a little dome of swollen paint, sometimes with sharp ridges at the edges of the drop. In some instances the films recovered to become flat and even, in other cases the test locations remained visible as lines where the edge of the drop had been or as a slight change in the gloss level.

Research into the effects of cleaning

On the second day, Bronwyn Ormsby complemented these initial empirical observations with a detailed consideration of recent research into the effects of wet-cleaning treatments on acrylic paints.

The debate about the removal of original surfactant components had caused concern among some delegates at the 2006 MPU conference. (Much of the work described here can be found in the Proceedings from the MPU conference, Getty Publications.) Accordingly, researchers have continued to look very closely at a series of questions relating to extraction: what comes out of the bulk of the dried acrylic paint film and what from the paint surface during cleaning? How much of it comes out? How quickly is it extracted? Does removal of materials at the surface disturb the distribution and equilibrium of materials, and trigger more migration of components?

Researchers have continued to deploy, test, and evaluate by analytical means different extraction techniques, including full immersion for various durations and swabbing, in order to refine our understanding of this process. Bronwyn and Jaap Boon's electrospray ionization mass spectrometry studies confirmed the presence of specific surfactants on the surface of paintings. Other studies by Greg Smith, Stefan Zumbuehl, Rebecca Ploeger, Paul Whitmore, and their co-authors were reviewed in terms of their contribution to our understanding of how materials move through acrylic films and what comes out of acrylic paints subjected to water or solvent washing. Some of their findings are discussed here.

As evidenced by our test protocols the previous day, swelling is a critical area of recent research. At the GCI, dynamic mechanical analysis has been deployed to determine swelling responses for various paints. Findings indicate that the propensity for swelling relates to brand, pH, and, to some extent, the pigment or colorant present.

Separate stress strain tests by Rebecca Ploeger and others, following immersion and drying of samples, showed that while acrylic samples immersed for 24 hours in water did break sooner than the control in stress/strain tests, those immersed for 1 minute did not break appreciably sooner than control samples and those subjected to swabbing alone were close to the control in terms of resilience.

Analysis of submerged samples indicated that their polymer chains were more densely packed following immersion. Such changes were not seen in swabbed samples in Rebecca's tests, although severe protracted changes in RH (e.g. 10%RH) induced comparable polymer densification to that seen following 24 hour immersion.

The mechanism by which surfactant moves to a paint surface was described along with patterns of occurrence; earlier paint formulations and organic pigments both appear to be relatively surfactant rich.

Clearly, the technique of paint application and thickness of the film also exert an effect on what eventually leaches out of the paint, as do other factors such as conservation treatment, film age, and environment.

Surfactant from bulk paint films can be measured on the surface within days of application, but it isn't always there. Some brands are surfactant-rich very quickly. In other brands there is initially no surface accumulation but it emerges to cover the surface over time.

Bronwyn gave an account of tests intended to determine the effect of water on paint films and surfactant at different conductivity levels and the session concluded with a summary of the effects of cleaning.

Again, we were guided to think about those conditions under which acrylics are most stable. While they may be vulnerable to swelling with water, swelling may be avoided or controlled somewhat by combining aqueous cleaners with aliphatic hydrocarbon solvents or by setting aqueous systems at pH 5-6.0 (though, again, we were reminded that different paints will respond differently).

A caveat was also introduced here. Even if we decide that a surfactant-rich dirt layer should come off a paint surface, it will likely return at some point; while swabbing for a minute cleans surfactant from the surface, it does not seem to remove any from the bulk film.

New cleaning options

In the next section, we were introduced to new cleaning options being developed by Dow Chemicals together with the GCI and Tate. The test methodology involved creating artificial dirt and evaluating cleaning efficacy using both conventional manual cleaning tests and a robotic instrument for industrial applications, known as a High Throughput Cleaning Device.

The robotic system enabled specific assessment of cleaning efficacy so that, for example, deionized water might be determined to achieve 13% cleaning of a sample whereas the addition of Triammonium Citrate and TRITON™ XL-80N yielded 84% dirt removal. Aqueous and mineral spirit solvent systems were tested along with surfactants including, in the second generation of tests, "green" products, such as Ecosurf EH 3, 6, and 9 (Dow specialty ethoxylate surfactants that are fast-wetting, low odor, low foaming, and biodegradeable). (See article by Chris Stavroudis, pp. 24 - 28.)

By varying components and pH levels different effects were achieved, and the tests resulted in the tailoring by Dow of a series of clear, stable microemulsions that combine hydrocarbon solvents, water, surfactants, and other constituents in various combinations and proportions. The microemulsions proved in both robotic and conventional testing to be nearly as good as water at cleaning without water's downside of swelling, and much more effective cleaners than mineral spirits alone. In effect, they are a mineral spirit-based system that can encapsulate water and surfactant, effectively targeting dirt while simultaneously forestalling swelling of paint.

Naturally, a new system such as this is not without challenges. Early tests indicate that critical issues for conservators, such as the stability of the emulsion, controllability during use, clearing, and speed of cleaning action require further study and refinement. In their current form, the particular alcohol content, added as a cosolvent, in some of these microemulsions also makes some of them smell quite powerfully.

Richard Wolber's presentation on the second afternoon developed the theme of controlling swelling during cleaning. He followed on from the earlier discussion by underlining the notion that aliphatic hydrocarbons might form a promising component within systems for cleaning acrylic paints. While they themselves effect only moderate cleaning action on most acrylics, they also cause minimal disruption or extraction of the paint film.

For effective cleaning, however, it seems essential to combine an aqueous component with the aliphatic hydrocarbon in the cleaning system. Here Richard proposed that even if we can't completely mitigate the potential for extraction and disruption that comes with the choice of water for cleaning, we can nevertheless modify the pH, conductivity, and specific ion effects so that the cleaning solution has as benign an effect on the paint surface as possible, while still remaining an effective cleaner.

To illustrate this point about manipulating the action of water, Richard demonstrated how conductivity of the cleaning solution can predict the swelling effect of a solution, since a solution with low conductivity results in water moving into the paint film due to osmotic pressure (and, potentially, the action of components such as the Triton surfactant in the film). To prevent this water movement, the osmotic pressure can be adjusted by adding salts to the cleaning solution.

Richard has determined that, in general, the isotonic level for a safe cleaning solution will be approximately ten times the conductivity of the paint surface. However, the character of the ions in the solution also matters. Different salts in the cleaning solution may yield different amounts of swelling on different colors from different manufacturers. (We observed little swelling in a cadmium yellow sample the previous day with a cleaning solution containing sodium chloride but considerable swelling of the same sample with a solution at the same conductivity level containing sodium sulphate.)

Microemulsions were again discussed at this point including the various formulations: classic cosolvent emulsions and surfactant only emulsions. Richard provided an account of biodegradeable surfactants and two siloxane-based solvents that are even less polar than aliphatic hydrocarbons. The microemulsions enable the user to retain the cleaning properties of the constituents of the emulsion while controlling the amount of water or surfactant that actually reaches the paint surface.

Evaluating the tests

Thursday commenced with a review of the test results with Richard.

There was consensus among the group that the Dow microemulsions worked very rapidly. The results also corroborated the notion that the closer you get to pure water, the greater the risk of swelling, with those solutions containing most water causing the most rapid swelling. In general, it was extremely interesting to have the opportu-

nity to test the panoply of cleaning solutions provided. As Richard stated during the tests, "there will not be a single answer to these cleaning problems. Generally speaking, the less water, the less aggressive the system, and the less solvent (or the less polar the solvent), the less aggressive the system."

Beyond these facts, even this short round of testing confirmed that there are many solvent/water/surfactant choices that can be made. An interesting observation from several conservators was made regarding the efficacy of saliva in the tests, and Richard confirmed that the water, pH level, and conductivity of saliva may make it a less swelling solvent for soiled acrylic paints than pure water.

The session concluded with the instructors urging the group to try to understand the target soiling and art surface as accurately as possible, to load the range of cleaning solution choices in the direction of not swelling and not extracting material from the film, and to keep documenting findings and sharing observations.

Case studies

In the subsequent session, Bronwyn outlined a series of treatment case studies (some of which are described in *The Picture Restorer*, No.37, Autumn 2010). Here, naturally, the real world muddies the waters somewhat; issues arise of what is intentional, and the ethical stakes for the removal of original material from a painting are clearly far higher.

In one instance one might ask whether a surfactant layer might act as a buffer or release layer for dirt. Elsewhere one might be concerned that a dirty surfactant-rich layer might not only detract from the appearance of a painting but might also preferentially pick up dirt and even adversely affect the Tg or hygroscopicity of the outermost layer or the paint.

From 2006 to 2009, Axa Art Insurance sponsored the Tate Axa Art Modern Paints Project (TAAMPP) at Tate, permitting conservators to study and treat paintings by Jeremy Moon, John Hoyland, Andy Warhol, Alexander Liberman, and Bernard Cohen. Tate conservators tested a full range of wet and dry cleaning systems, and subsequent projects have enabled them to examine some of the newer cleaning materials.

Related matters including the consolidation of acrylics and a preliminary study into the issue of varnishing acrylic paintings (previously presented at the ICOM-CC Lisbon meeting) were also discussed. The challenging issue of removing applied varnishes was mentioned in connection with the thinning of a Soluvar varnish that had been unevenly applied to an Agnes Martin painting in the past.

Modular cleaning for acrylics

The case study session concluded with Chris describing the cleaning of a highly-textured painting. His account of using the Modular Cleaning Program (MCP) methodology to determine the substrate conditions and then the most suitable surfactant, chelator, pH, and conductivity formed a perfect transition into the next session.

Here, Chris discussed using the MCP program to yield a more subtle and nuanced approach to the cleaning process. He commenced with a concise account of the origins of the MCP approach in Richard's workshops, which had introduced the solvent gels that came to assert such a great impact on the field over recent decades.

Chris described the MCP principles in relation to the cleaning of acrylics, specifically the management of water with pH buffers, ionic buffers, chelators, surfactants, and gelling agents. He focused on how the system might be used to attain the objectives of managing diffusion of material into, and extraction of material out of, the paint.

He also described further the potential role of silicone based cyclomethicone microemulsions that Richard had introduced at the CAPS 2 meeting in 2011. The silicone solvents are considerably less polar than aliphatic hydrocarbons so they can be used to nudge cleaning systems further into territory that is even less likely to cause swelling of acrylics. These solvents have absolutely no surface tension, so controlling the cleaning area requires a little practice, but they do evaporate and they are clearly valuable in the clearance of microemulsions and suppressing the potential swelling of applied cleaning solutions.

Final tests and wrap-up

In the afternoon we undertook further testing on the samples and practiced cleaning with Dow microemulsions and clearing with non-polar silicone solvents. Where there were porous or vulnerable surfaces, these solvents, applied as a couch (to minimize the cleaning solution being drawn into the surface and the silicone solvent being wicked away), served to moderate the speed and extent of cleaning action of the faster-acting emulsions. On one cadmium yellow sample, the use of D4 silicone solvent to clear the microemulsion cleaning test enhanced the safe cleaning of the area even when compared with the very low aromatic content mineral spirit solvent Alcosol D40.

During these practical sessions, we also tested an additional range of microemulsions, developed by Richard, and based on differing proportions of water, the silicone solvent D4, and the surfactants laureth-3 POE (L-3) and ECOSURF™ EH-3, as well as three cleaning systems made from water, low aromatic mineral spirits, and TRITON XL-80N surfactant. (Again, see accompanying article.)

By this stage of testing, we began to be more confident in some of our observations. It was quite clear that the mixture with most water was most aggressively cleaning and swelling the paint sample. A combination of two of the

microemulsions, mixed together and cleared with D4 silicone solvent, yielded the most visually pleasing cleaning result in my cadmium yellow test. However, an adjacent area of ground responded better to the TRITON XL-80N microemulsion with more water content followed by clearing with D4 silicone solvent.

We also looked at the use of cleaning components for pseudo-"controlled" swelling. In one test where swelling had locked dirt into the surface upon drying, it was possible to extract soiling with a pH 6.5 buffered Pemulen solution which enabled me to gingerly remove the locked in dirt on my sample without pulling color off (in contrast to the D40 mineral spirit in this case).

As the week drew to a close, the instructors called on the group to join the scientists in a two-way dialogue about the problems that can beset acrylic paintings and the tools and methodologies that have been developed in tandem with over a decade of research.

If we remained inexpert in the niceties of using the full range of cleaning options that were presented, the group felt we'd acquired an enhanced understanding of the material of acrylic paints and the array of research dedicated to their study. We had all gained a vivid series of haptic memories from the studio tests, as well as a new community of cohorts exploring similar issues and a methodological framework for our own explorations.

Each of us was very grateful to the instructors and to our terrific hosts including the conservation staff and the splendid Heritage Lottery Fund interns. We are also greatly endebted to Tram Vo and the GCI for preparing, organizing, and supporting the workshop.

The following reading list was given to the participants of the workshop as prepatory material.

Essential Reading for Workshop Participants

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haptic - Haptic perception is the process of recognizing objects through touch. It involves a combination of somatosensory perception of patterns on the skin surface (e.g., edges, curvature, and texture) and proprioception of hand position and conformation.

The concept of haptic perception is related to the concept of extended physiological proprioception according to which, when using a tool such as a stick, perceptual experience is transparently transferred to the end of the tool.

from wikipedia

More from CAPS3: Surfactants, silicone-based solvents, and microemulsions

A Surfeit of Surfactants

Back in the January 2009 issue of the *WAAC Newsletter* I did a piece entitled "Sorting Out Surfactants" which surveyed common surfactant products encountered in conservation and listed their various properties. Since then, the surfactant landscape has changed a little, and some new product types have emerged which are now starting to find their way into our field. What follows, then, is intended as a brief update to the 2009 article to highlight some of these new products and their possible applications in conservation.

We are probably all familiar with the non-ionic surfactant TRITON™[1] X-100 (also Synperonic N in the UK and EU) which has been something of a favorite of conservators everywhere. (It, along with propylene glycol, is also the active ingredient in Photo-Flo.)

TRITON X-100 is just one product in Dow's range of TRITON X-series surfactants that are based on ethoxylated octylphenol. Two other products in that range, TRITON X-405 and X-305, have been and are probably still used in artists' and commercial acrylic paints in the emulsion polymerization process and possibly also to aid pigment dispersion. X-100 has on average of 9.5 ethoxylate groups giving it a Hydrophile Lipophile Balance (HLB) number of 13.5 while X-405 has an average of 35 of the polar, hydrophilic ethoxylate groups increasing its HLB to 17.6.

These octyl- and nonylphenol based surfactants (also known as APEs, alkylphenol ethoxylates) are quite rough on the environment and are on their way out.

The surfactant itself is not the problem. The risk from these surfactants comes from the residual ethoxylated octyl- and nonylphenols, left when the ethoxylate groups degrade into ethanol molecules and float away. These molecules act as estrogen mimics, and as such have their effects at very low concentrations. The deleterious effects appear to occur at parts per billion ranges and lower so, it takes very little in the ecosystem to manifest problems in fish (or, potentially, people).

Octylphenol and nonylphenol cause feminization of male fish rendering them nearly sterile. (I suspect that it is not a coincidence that the common spermicide nonoxynol-9 is polyethoxylated nonylphenol.) Their discharge into the environment is, or is soon to be, prohibited in most countries.

TRITON XL-80N, an ethoxylated and propoxylated C8 - C10 alcohol, was released a number of years ago by Dow as an ecologically sound replacement for X-100. It was widely adopted by conservators, at least in the US. However, as does happen, XL-80N was then discontinued by Dow a few years ago. Another company, Huntsman, has released a very similar product Surfonic JL-80X that remains available. The Surfonic product is based on C10 - C12 alcohols rather than C8 - C10. You will notice in the table below that the properties of JL-80X are not quite identical to XL-80N.

Because of the environmental problems associated with alkylphenol ethoxylates, manufacturers are now producing ranges of alternative non-ionics including those that are readily biodegradable without harmful effects, so as to be be nicer to any creatures downstream from our work sites, piscine and otherwise.

The one that we'll discuss here, offered by Dow under the ECOSURF™[1] brand, is the ECOSURF EH series (EH-3, EH-6, and EH-9) which are based on an ethoxylated/propoxylated branched alcohol (2-ethyl hexanol) rather than the straight chain alcohols found in TRITON XL-80N and Surfonic JL-80X.

These surfactants dissolve well in both water and low polarity solvents so they can be cleared (rinsed) with either water or low polarity solvents, giving a lot of flexibility in their use. Dow's tests, as reported in their literature, show that they are generally more effective than the linear alcohol ethoxylates and compare well with the nonylphenyl ethoxylates, at least when it comes to greasy soils and cross-linked baked-on soils.

ECOSURF products have featured in the continuing joint research project between Dow, GCI, and Tate that aims towards improved materials for the cleaning of acrylic paint, and some of them were tested at CAPS3 (as described in the preceeding review of the workshop). And the ECOSURF EH series (EH-3, EH-6, and EH-9) have now been added to the MCP, which most of the world won't see until the next update of the program.

[1] Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow.

Table 1
Physical properties of selected nonionic surfactants

Common Name	CAS number	cmc	Density	HLB	Cloud Point	MW
Ecosurf EH-3	64366-70-7	0.0480	0.9651	7.9	52	NA
Ecosurf EH-6	64366-70-7	0.0914	1.0022	10.8	43	NA
Ecosurf EH-9	64366-70-7	0.1066	1.0237	12.5	61	NA
Laureth-3 POE	3055-94-5	0.175	0.9222	7.8	37	341
Triton X-100	9002-93-1	0.015	1.07	13.4	66	628
Surfonic JL-80X	68154-97-2	0.00885	1.0072	13.1		603
Triton XL-80N	68603-25-8	0.0086	0.985	12.5	50	442

Exploiting their solubility in low polarity solvents, all three products were dissolved in mineral spirits and found some effective uses in removing materials from sensitive acrylic surfaces. I suspect that the polar ethoxylate/propoxylate chains were drawing the more polar components into the mineral spirits though hydrogen bonding.

But the real fun comes when you add some other new things into the mix.

Microemulsions and ECOSURF EH-3

Dow, Tate, and the GCI introduced microemulsions to the conservation profession at the 2009 Los Angeles AIC Meeting. More recently, Richard Wolbers has been working on a new class of microemulsions for cleaning. He developed them for cleaning acrylics, but I think they will find incredibly wide use in the broader world of conservation.

There is much that is new to the conservator in these systems. First, they are microemulsions (microemulsions will be discussed shortly). Second, they are made with silicone-based solvents. What makes them particularly versatile is that the water content can be varied from 10 to almost 50%.

The very word "microemulsion" is likely new to many conservators, and it is more than the name implies. A microemulsion, you might think, is just an emulsion with smaller droplets. And you would be partially correct. But a microemulsion is not just a regular emulsion beaten with a hammer, or otherwise forced to form smaller micelles.

Given the right conditions, a microemulsion forms spontaneously – they actually require less shaking and cursing than a conventional emulsion. The trick to making a microemulsion is to adjust the properties of the solvent, water, and surfactant so that the solvent/surfactant and the water/surfactant have the same or nearly the same surface energy. (Often a cosolvent has to be added, typically a long chain alcohol, to get the surface energies to be compatible.) The two phases should spontaneously form a water in oil, an oil in water, or even a lamellar emulsion depending on the relative proportions of solvent to water.

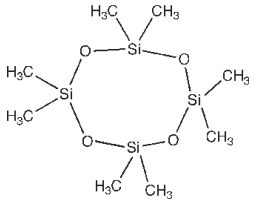
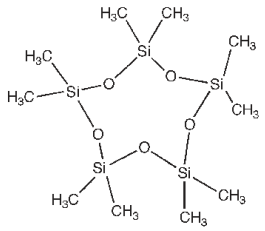
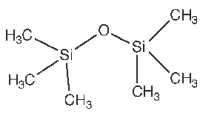
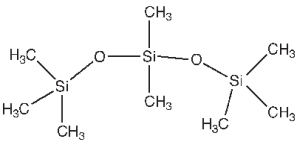
An oil in water emulsion, micro- or otherwise, has the oil phase in the small spherical micelles studded by surfactant molecules. In a water in oil emulsion the micelles are filled with the aqueous phase and the dispersed phase is the oil (solvent). A lamellar emulsion is smack dab in the middle of the o/w and w/o emulsion types. Rather than forming spheres, the water phase and the oil phase each form layers separated by layers of surfactant. It's rather like the layers in puff pastry, a thin layer of pastry, a layer of butter, a layer of air, a layer of butter, a layer of pastry, repeat…

And, not surprisingly, the droplets of the dispersed phase in a microemulsion are much smaller than those of a conventional emulsion. They are so small, in fact, that they don't scatter light, so a microemulsion is not creamy white but transparent.

The smallness of the micelles also allows for the emulsion to have a low viscosity. The emulsion viscosity can be increased, if one chooses, by changing proportions of materials. When conditons are changed to shift towards the formation of the lamellar microemulsion structure mentioned above, the solution viscosity increases.

The solvents used to form these microemulsions will also be new to most conservators. Silicone-based solvents or VMS (volatile methoxysilanes) are a class of unbelievably low polarity materials. They reside at the low end of the spectrum of polymerized dimethylsiloxanes. The smallest is the dimer, hexamethyldisiloxane which is a fast evaporating solvent. The high end of the range of the polymer family is silicone rubber and between the two extremes are the silicone oils and silicone gels (of breast implant fame).

Table 2 Introducing the silicone-based solvents: their names and faces.

Name	Cyclomethicone D4	Cyclomethicone D5
Chemical Name	octamethylcyclotetrasiloxane	decamethylpentaoxapentasilecane
CAS	556-67-2	541-02-6
BP	172	210
MW	296	370.77
		
Name	Hexamethyldisiloxane	Octamethyltrisiloxane
Chemical Name	hexamethyldisiloxane	octamethyltrisiloxane
CAS		
BP	101	152
MW	162.38	236.54
		

A notable characteristic of these solvents is that they feel greasy! And when you play with them, they will also feel familiar. This is because so many personal care and cosmetic products have silicone solvents in their formulation. Skin creams often contain either a silicone oil, gel, or a non-silicone material that leaves a geasy film behind. While our everyday experience with these products leaves us tempted to assume that these solvents will leave a greasy splotch behind, they will not. (You can easily verify this by placing some on a clean glass surface and looking for residue after the solvent evaporates. You won't find any.)

The silicone solvents also have no surface tension. They will spread out to a surprising amount on a surface. This may also take some getting used to when working with them.

The groups of interest to conservators are the short chain solvents and two cyclic structures, the cyclomethicones D5 (decamethylpentacyclosiloxane) and D4 (octamethyltetracyclosiloxane). (The cyclomethicones are often obtained and used in a mixed isomer product that is much cheaper than either pure D4 or D5.) In addition to very low solvent polarity, they have nearly no odor and evaporate relatively slowly. The solvents are considered relatively safe via inhalation from a health and safety perspective, but should, of course, be used with adequate ventilation or appropriate personal protective equipment.

So, why a microemulsion and why one with a silicone-based solvent?

Well, very often we want to pick up a water soluble material which is sitting on a water sensitive surface. In really bad cases, it is clinging or has even insinuated itself into the surface. If we can disperse small spheres of water in a nonpolar solvent, we can have our cake and eat it too. The flood of non-interacting solvent keeps the sensitive surface under control, while the small spheres of emulsified water can pick up the grime while only minimally affecting the surface.

A microemulsion gives us additional advantages over a conventional emulsion. First, it is transparent and we can see what is happening as it functions, distinctly different from watching a puddle of milky emulsion sitting on a surface and crossing our fingers. Equally important, microemulsions are not as prone to breaking. Often a conventional emulsion will break, separate into two phases, when the composition of the aqueous phase changes as material is being dissolved. (This is probably caused by a change in ionic strength of the dispersed water phase that disrupts the finely tuned balance between the surfactant, the water phase, and the continuous phase of the emulsion.)

Richard has made a phase diagram that describes the properties of mixtures of cyclomethicone D4, laureth-3 POE (L-3) surfactant, and water. We found at the CAPS3 workshop that ECOSURF EH-3 works better than the L-3 at building the microemulsions. (Better in this case means that the emulsions with the L-3 and the EH-3 both formed all of the the microemulsions we tested but the EH-3 –built microemulsions were a little clearer and "prettier" than the L-3 ones.) So I've copied his diagram but changed the surfactant to EH-3 to try to make things a little less confusing. (See Figure 1.)

Another extrordinary feature of this particular microemulsion system is that the aqueous phase can have a fairly high ionic content and not adversely affect the emulsion. (Remember how conventional emulsions often "break" when they pick up too much ionic material, i.e., dirt.) This allows one to make all sorts of adjustments to the aqueous phase – varying the pH, raising or lowering the conductivity, and chosing specific ionic materials to incorporate, as well as other 'actives' like chelating agents, etc..

The phase diagram represents how different proportions of the components will form different types of emulsions. The circles in the shaded zone represent microemulsions, the tirangles are conventional water-in-oil emulsion, the squares are conventional oil -in-water emulsion. The remaining areas show where oil and water don't mix. Note that all percentages are by weight.

Within the microemulsion phase, Richard has described a number of specific mixtures (Table 3). Of particular interest, note that the aqueous phase can range from 10% to nearly 50%. This gives us a huge range of aqueous activity with which to experiment. Especially considering that we can also manipulate the aqueous phase to be more or less aggressive to the grime by varying the pH or adding chelating agents.

To mix these microemulsions, I use small vials (obtained from DiscountVials.com) and a small scale (see Technical Exchange in the last *WAAC Newsletter*) and dispense the materials to be weighted directly into the vials. I make 10 gram batches, so I just divide the percentages above by 10 to get the weight of each material to add. You will probably not be surprised to find that I use the MCP to make the aqueous phase, setting the pH with a buffer, possibly adding an ionic buffer and/or chelating agent. The cap is screwed onto the vial and, after a quick shake, you should have a clear (or sometimes nearly clear) microemulsion. The viscosity of the emulsions vary; some are water thin while others are somewhat gelled.

The microemulsions are cleared from the surface with more silicone solvent. The cyclomethicone can certainly be used for this but it evaporates quite slowly. I prefer to use the hexamethyldisiloxane for rinsing as it evaporates quickly, comparable to a fast evaporating mineral spirits.

At the risk of being redundant, I think the combination of the ultra-low polarity silicone solvents, the relatively wide range of water concentrations, and the capacity to load buffers and chelators into the aqueous phase makes the systems described above incredibly promising for removing grime from water sensitive surfaces.

In fact, in my opinion, when approaching the cleaning of an acrylic paint surface, we will first try silicone microemulsions (varying the properties and amounts of the water phase), then aqueous cleaning systems tailored to minimize swelling by controlling the pH, ionic strength, additional ions, and osmotic effects, realizing that this will affect the paint more

Figure 1
Richard's phase diagram for mixtures of surfactant, solvent and water showing the area where a microemulsion phase will form.

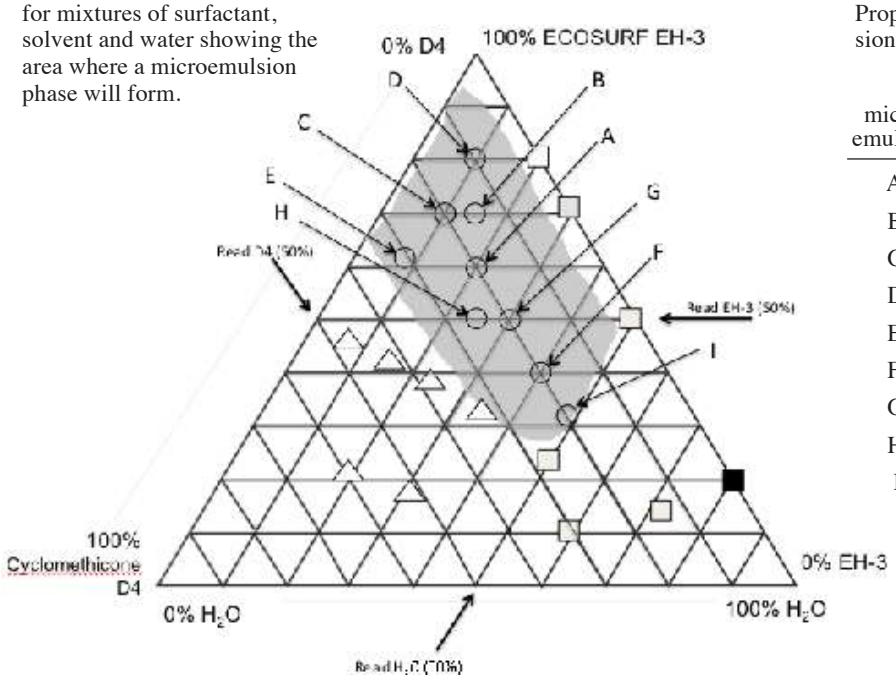


Table 3
Proportions (by weight) of the microemulsions indictated in Figure 1.

micro-emulsion	% cyclo-methicone	% surfactant	% water
A	20	60	20
B	15	70	15
C	20	70	10
D	10	80	10
E	30	60	10
F	20	40	40
G	20	50	30
H	50	25	25
I	20	30	50-ish

than the emulsion. If this still will not do the job, I think we will then reach for systems to swell the acrylic just enough to unlock engrained dirt. An aqeous Pemulen TR-2 gel at pH 6.5, possibly with mineral spirits emulsified in would represent the big guns. Again, this is just my opinion and subject to change as research proceeds.

More microemulsion madness

The foregoing is by no means the only work being done with microemulsions, so I'll finish with a summary of some ideas in development.

The Dow/Tate/GCI collaboration has developed and tested a number of water-in-oil microemulsion systems based on aliphatic hydrocarbon solvents.

Three classes of microemulsions have been experimented with, all using High Throughput (HTP) automated testing at Dow and by conservators. The first systems I saw were incorporated into CAPS2 at MoMA in 2011. These were based on Shellsol D38, the anionic surfactant linear alkyl benzene sulphonate (LAS), and water with a blend of butanol and hexanol as the cosolvent. The water varied from 34% to 70%. These were a bit too effective although they have been used by some for removing very ingrained soiling from acrylic grounds.

For CAPS3, the second generation of microemulsions born from the HTP research was introduced. These microemulsions were formulated with Shellsol D38 (or Alcosol D40 in the UK), nonionic ECOSURF EH-6 as the surfactant, water, and mixtures of butanol and hexanol as the cosolvent. The water phase was 8-9%; these were found to be much better behaved on the more fragile acrylic paint samples, working more slowly and controllably.

A third series of microemulsions based on the anionic branched sulfosuccinate surfactant TRITON™ GR-7M is being evaluated in comparison with the first two generation microemulsions by Bronwyn Ormsby and the conservators at the Tate.

I look forward to the forthcoming release of the phase diagrams and cleaning performance evaluations of these novel cleaning systems from the Dow/Tate/GCI collaboration. I promise to cover these and other microemulsion developments in a future *WAAC Newsletter*.

And, as well, Richard also had a few microemulsions based on mineral spirits, TRITON XL-80N, and water that he persented at CAPS3. The aqueous phase varied from 10-30% and the XL-80N was used at 30%.

Supplies: Pure VMS solvents can be obtained from Shepard Bros. in La Habra, CA, contact Scott Hudnall (scott_hudnall@shepardbros.com). Much less expensive mixed isomer D4 and D5 cyclomethicone can be ordered from The Chemistry Store.com. By the time you read this, the ECOSURF EH line (EH-3, EH-6, and EH-9) should be available from Conservation Resources International. L3 can be obtained (in bulk) from www.makingcosmetics.com.

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Articles You May Have Missed

"Restoration of Historic Park Ridge Mural under Way," Park Ridge Herald-Advocate, 07/10/2012

A faded mural that is part of local history is slowly regaining its vibrance thanks to professional art restorers and a community fundraising effort. The "Indians Cede the Land" mural is now undergoing restoration work by Parma Conservation in Chicago, readying the piece for a planned unveiling at the Park Ridge Public Library later this year.

"It's actually quite far along," said Elizabeth Kendall, founder and chief conservator at Parma Conservation. The 6-foot-by-20-foot mural, painted by George Melville Smith in 1940 for the former Park Ridge Post Office at 164 S. Prospect Ave., was saved by the late Paul Carlson, a Maine East High School history teacher, in 1970. Upon Carlson's death in 2008, family members presented the Park Ridge Public Library with the mural, which was covered in cracks because shellac, a type of resin, had been applied in 1970 to remove it from the wall.

In addition to restoring the mural a smaller replica is being created to travel to Park Ridge schools so children can learn about the history of the piece.

"Bank of Valetta Supports Restoration of the Crucifixion," Malta Independent, 07/16/2012

Bank of Valletta is supporting the restoration of Prof. Giuseppi Briffa's (1901 – 1987) 'The Crucifixion' at the Parish Church of St. Mary (known as il-Knisja l-Qadima – the Old Church). This is the only painting that was painted specifically for this church in recent years.

The parish church of St Mary was built some time between 1607 and 1655 on the site of a mediaeval church also dedicated to the Assumption. The Church served as the main parish church for Birkirkara and most of central Malta until the mid-18th century when the Church of St Helen was completed. The church then fell into misuse and all sacred art and artifacts were transferred elsewhere.

The church was largely left abandoned and during an earthquake in 1856 what remained of the dome and the barrel vault collapsed. In 1950, the Collegiate Chapter of Birkirkara started reconstructing the church, which was reopened to the public in 1972. Prof. Briffa painted 'The Crucifixion' in 1980 to fit an existing retablo inside the church. This might well be the last work by Briffa before his demise in 1987.

The painting was stored in the church's Oratory, where exposure to humidity and lack of adequate display led to its deterioration. Parish Priest Lino Azzopardi, with the collaboration of historian Sandro Sciberras, subsequently set in motion the restoration process – with the support of Bank of Valletta. The restoration works have been entrusted to Prevarti Art Restoration and Conservation.

"MFAH Director Gary Tinterow Appoints Two Leading Figures in Art Conservation to the Museum of Fine Arts, Houston," Art Daily.Org, 07/21/2012

MFAH Director Gary Tinterow today announced the appointments of David Bomford and Zahira (Soni) Véliz to key conservation positions at the Museum of Fine Arts, Houston. Bomford has been appointed Director of Conservation, responsible for establishing conservation priorities in the care of the collections of the MFAH and its two house museums, Bayou Bend and Rienzi, in addition to conservation research and scholarship on the museum's works of art.

Véliz has been appointed Senior Paintings Conservator, responsible for the care of the paintings collections of the MFAH and the two house museums, and for initiating research and scholarship related to those collections. Both will also work closely with Tinterow and senior conservators of the MFAH to prepare the Conservation Department for new and consolidated facilities within the redevelopment of the MFAH campus. Bomford and Véliz, who are married, will relocate from London to Houston in October.

"Jamaica Sculpture Restored," Times Ledger, 07/21/2012

About four decades after it was installed in an unassuming little park on Hillside Avenue, a unique example of abstract sculpture in Jamaica was restored to its original condition last week.

A team of restorationists with the Citywide Monuments Conservation Program, a division of the city Parks Department, spent last Thursday restoring Wingdale, a 12-foot-tall steel piece of contemporary art created by Roger Bolomey in 1971.

The sculpture was designed to stand on its own steel base, but when it was installed the bottom was enclosed in an aluminum base that came up about a foot high, and when workers opened it last week they were surprised to find it weighted down with sandbags. "It was a very uncommon way of securing a sculpture that weighs almost a ton," said project conservator Christine Djuric.

The piece was originally designed to be displayed on its own base so that it reflected Bolomey's aesthetic of thin sheets of steel intertwined with one another as they ascend. A few months ago, workers poured a concrete base and moved the sculpture to its new permanent home last week. Workers then stripped off several layers of paint in preparation to repaint it its original color, a deep red.

The Conservation Program fills in the gaps where Parks cannot, maintaining sculptures all over the city and, when needed, performing major renovations. Each summer, the program's staff and its interns restore public art in the five boroughs with the help of private sponsors.

"Restoration Begins on Paintings at St. John's Seminary," Ventura County Star, 07/21/2012

Ten feet above ground on a scaffold, a conservator wearing plastic gloves works gently to remove a layer of surface dirt from "Our Lady of Guadalupe," one of three paintings in the oratory at St. John's Seminary in Camarillo. Decades of smoke from burning candles during daily prayer had darkened the image over time.

"These haven't been cleaned since they were put up in 1943," said Patty West, the lead conservator in charge of restoring three oratory paintings at the seminary. "They were done by the renowned religious artist Hector Serbaroli in 1943," said Monsignor Craig A. Cox, rector and president of St. John's Seminary.

The artist painted the images in a studio before transferring them to the seminary. The murals are oil on canvas mounted onto a board and attached to the wall. "The murals are covered in a layer

of gray surface dirt most likely from the smoke of burning candles placed on the altar during services," West said. A roof leak caused some damage, particularly in areas of the faux mosaic ceiling in the niches surrounding each mural. There also are small areas of paint loss, particularly on the top and bottom portions of the murals.

"The conservation includes consolidating any loose or flaking paint so that there is no further paint loss," West said. The painting are then cleaned to remove the gray layer of surface dirt. Once the murals are cleaned, West said, he will apply a brush coating of a matte finish acrylic varnish to protect them.

"Germany Helps Restore Celestial Temple," Vietnam.net, 07/23/2012

The Toi Linh Tu (the Highest Celestial) Temple in the Hue Citadel, built during the final days of the Nguyen Dynasty, has been restored with German assistance and is again open to visitors.

The temple, built in the early 20th century – the Nguyen Dynasty ruled from 1802 to 1945 – was meant originally for ladies of the royal court. Built in the Phu Noi Vu (the Royal Treasury) compound, the Vietnamese ornaments inside and outside attest to the local artistry and craftsmanship though they were also inspired by European architecture.

The restoration was completed on Friday by the Hue Monuments Conservation Centre and German Conservation Restoration and Education Projects (GCREP). A group of German experts led by Andrea Teufel, project manager and chief restorer, six students from the Hue College of Arts, and local artisans had begun the work in July 2011.

Two major issues – how to conserve and restore the original stucco and mosaic artwork on site, and how to conserve and restore the Long Tho lime-plaster typical of Hue – were resolved during the project. The findings will be documented so as to sustain further scientific inquiry and heritage preservation projects in Hue.

Active knowledge transfer – building local capacity through on-the-job training – was also part of the project. German GCREP restorers have been training Vietnamese artists and artisans since 2003.

"Patti Smith ad Assisi Restauratrice di Giotto (Patti Smith Restores Giotto in Assisi)," Lo Spettacolo, 07/30/2012

Patti Smith visited the religious community of the Basilica of Saint Francis, and, in addition to dining with the friars, the American restored at tiny portion of the frescoes. "I'm sorry, Giotto - said Patti - but I did it with love."

The most intense moment of the visit was her homage before the tomb of the saint. Smith, who is also an artist, was given a private tour of Giotto's frescoes, those of Simone Martini and to the chapel of St. Nicholas, which is currently being restored. Here the chief restorer, Sergio Fusetti, gave her a brush and allowed her to restore a small (a few centimeters) portion of the sky, assuring her that the area would not be removed.

The American rock star, complete with black hair parted in two braids, had performed the previous night in Perugia for Rockin 'Umbria.

"Barnum Museum Offers Inside Look at the Art of Restoration," CTPost.com, 07/19/2012

Whether working at Château de Versailles outside of Paris or at Bridgeport's Barnum Museum, the goal for freelance conservator Chris Augerson is the same: to repair and preserve objects of great historical value. Based in Edinburgh, Scotland, and Millbrook, N.Y., Augerson travels the world to help great museums, large and small alike, salvage priceless treasures that have suffered the ravages of time, extreme humidity or disasters, natural or human-made.

Now at the Barnum Museum, Augerson is restoring horse-drawn carriages, which is one of his specialties. Augerson will take time off from his busy schedule for the Barnum Museum's new lunchtime lecture series, called "Bring a Sandwich, Take a Memory." Augerson said that he has been working in Bridgeport for the past 18 months and expects to be here for at least 18 months more -- confronting the extensive damage to the museum and its contents caused in June 2010, when Bridgeport was hit by a freak tornado.

Barnum Museum Executive Director and Curator Kathy Maher said the series is part of Recovery in Action, funded in part by the Department of Economic and Community Development's State Historic Preservation Office and Bridgeport's Downtown Special Services District.

"Italy to Start Colosseum Repairs in December," Agence France-Presse, 07/31/2012

Long-delayed repairs to the 2,000-year-old Colosseum will begin in December in a project funded by Italian billionaire Diego Della Valle to save the crumbling monument, officials said on Tuesday. The culture ministry said the first contract for the restoration project -- to clean up the facade of the Roman amphitheatre blackened by passing traffic -- was awarded last week.

The restoration of the Colosseum will last two and a half years and the ancient monument will be covered in scaffolding but will be accessible to the public throughout. Apart from cleaning, restorers will also repair cracks in the building and remove temporary metal arches installed on the ground level. The project, which also includes construction of a new visitor centre and repairs on all the internal and subterranean areas of the monument, will increase by a quarter the areas accessible to tourists.

The monument was completed in 80 AD by the Roman emperor Titus and reports on its pitiful state have often featured in Italian media in recent months. A recent study also found the whole monument is tilting by 40 centimetres (16 inches) on its southern side possibly due to cracked foundations. More studies on the tilt are due to be compiled by next year.

"$4M Piece Found," New York Post, 08/01/2012

A multimillion-dollar Roy Lichtenstein painting that disappeared 42 years ago has popped up in a Manhattan warehouse. "Electric Cord" was last seen in 1970 when owner Leo Castelli sent the piece by the pop-art prince out to be professionally cleaned.

It was never returned, and the fate of the painting was a mystery — until last week. That's when Castelli's widow, Barbara Castelli, got a call from the Roy Lichtenstein Foundation saying the piece had turned up at a high-end art storage warehouse on the East Side, where some-

one was trying to sell it. She asked for a restraining order barring the estimated $4 million painting from being moved from the Hayes Storage Warehouse until she can get her day in court.

Leo Castelli, who put on Lichtenstein's first solo exhibit at his gallery in 1962, bought "Electric Cord," a painting of a tightly wrapped electric cord, in the 1960s for $750, the court papers say. In January 1970, he sent the piece out to be cleaned by a well-regarded restorer named Daniel Goldreyer.

But instead of returning the painting, Goldreyer told Castelli the work had been lost. Lichtenstein died in 1997, and Leo Castelli died in 1999. The work was officially listed as "lost/stolen" in the international Art Loss Registry in 2007.

Then last week, James Goodman Gallery owner James Goodman called the Lichtenstein foundation to say he'd been told by a "third party" that the painting was at Hayes Storage, and asked if they'd authenticate the work, the court filing says. A rep for the foundation then tipped off Barbara Castelli.

Goodman told The Post he had no idea that the painting might have been stolen, and that the current owners claimed to have an invoice showing the piece was purchased from Leo Castelli.

"Ruling on Artistic Authenticity: The Market vs. the Law," The New York Times, 08/05/2012

Federal District Court Judge Paul G. Gardephe's résumé includes many impressive accomplishments but not an art history degree. Nonetheless he has been asked to answer a question on which even pre-eminent art experts cannot agree: Are three reputed masterworks of Modernism genuine or fake.

Judge Gardephe's situation is not unique. Although there are no statistics on whether such cases are increasing, lawyers agree that as art prices rise, so does the temptation to turn to the courts to settle disputes over authenticity. One result is that judges and juries with no background in art can frequently be asked to arbitrate among experts who have devoted their lives to parsing a brush stroke. The three art cases on Judge Gardephe's docket in Manhattan were brought by patrons of the now-defunct Knoedler & Company who charge that the Upper East Side gallery and its former president Ann Freedman duped them into spending millions of dollars on forgeries.

The judge's rulings may ultimately rely more on the intricacies of contract law than on determinations of authenticity. Neither Justice Saxe nor Judge Gardephe would discuss their cases or the issue. What previous rulings show, however, is that while judges and experts consider the same evidence — provenance, connoisseurship and forensic analyses — they tend to value it differently.

"Jackson Pollock's 'Mural' Arrives at Getty's Conservation Lab," Los Angeles Times, 08/07/2012

"Mural," the critically important painting in Jackson Pollock's development as a major American artist, has arrived in the conservation lab at the J. Paul Getty Museum. A visit Wednesday to see the monumental 1943 canvas, which is in the collection of the University of Iowa Museum of Art, shows why conservation work is imperative.

A pronounced sag can be seen in the center of the painting at the top. Unframed, "Mural" is roughly 8 feet tall and 20 feet wide. The downward weight in the middle is pulling up the bottom edges of the canvas at the right and left. Rather than a wide rectangle, "Mural" is showing modest but clear signs of a broad, downward curve.

What caused the sagging? At some point, a new lining on the back was added to reinforce the canvas. Relining, a common procedure, employed a wax adhesive. Given the picture's size, considerable weight was added to the painting.

Museum conservators will work with scientists at the Getty Conservation Institute to determine how to rectify the problem. They also plan to remove a layer of varnish from the painting's surface, apparently added in the 1970s, which creates a slight sheen. When work is completed in early 2014, "Mural" will go on view at the Getty Museum for three months.

"Institute of Art Restoration Preparing Next Generation Upkeep Pieces of History," Rome Reports, 08/12/2012

In 1939 the Italian Ministry of Culture founded the Institute for the Conservation and Restoration to maintain the country's artwork and heritage.

Five years later, in 1944, a school was also created in art restoration. Since then, students have learned the process of restoring artwork as well as detecting any possible threats to it from insects or temperature changes. They also have the opportunity to work with important pieces of Roman art.

To restore these images, they use the technique known as 'tratteggio' which was invented by Cesare Brandi, the founder of the Institute. It's a way to reintegrate the vertical brush strokes such as these. They are clearly recognizable so that they are not confused with the original.

During their five years of training, these students also travel to many of the places where these art pieces were created. This year, students and teachers have formed a team to help in the recovery of the art that was damaged by the earthquake that struck northern Italy in the region of Emilia Romagna. The teachers say that many of their students have a natural talent in restoring art.

Potential students have to pass an admission test to show their knowledge of art, their approach to colors and even knowledge in science. During its 73 years of existence, the Institute has worked on restorations not just in Italy but also on pieces from Egypt, India, Israel, Mexico and Turkey.

"Florence to Return Art Treasure to Public View," BBC News, 08/21/2012

The striking, black and white, eight-sided Baptistery of San Giovanni in the heart of Florence is one of the city's architectural glories. Tourists crane their necks and snap away with cameras as they take in the golden gates that fill the baptistery's main entrance. Fine as they are, the doors are only replicas, paid for by a Japanese millionaire.

Lorenzo Ghiberti's original, Renaissance masterpiece - The Gates Of Paradise - has had to be hidden from public view for more than two decades. It has been undergoing what is one of Florence's most important restoration projects. The work has taken 27 years to complete.

This is a towering, nine-tonne

work of art, wrought out of bronze and layered with gold more than 500 years ago. After standing in the Baptistery for more than five centuries, the doors were in poor shape. Wind and weather and pollution had blackened them. When the River Arno burst its banks in 1966, a torrent of muddy water poured across the piazza where the Baptistery sits, and wrenched the lower panels off the Gates.

Some repair work was done while the doors were still in situ. By 1990, though, it was decided to take them down and begin the full restoration programme. But why did it take so long to complete? "We had to understand why the bronze was getting ruined, do trials," said the programme director. "So the first 12 years were dedicated to studying and understanding the problem." And the science involved in finding solutions was complex.

Existing laser technology used to clean works of art needed to be specially adapted for work on the doors. There were only two restorers on the team, and they had other projects to attend to at the same time. But the grime of centuries has now been removed from the panels. And much of the original golden lustre of the Gates Of Paradise has been restored.

But they will not be returned to the Baptistery to stand gleaming in the sun on the piazza. From now on the doors will be kept in a glass case filled with nitrogen that it is hoped will prevent further deterioration of the bronze. The restored work is expected to be put back on show to the public in September in one of Florence's museums, the Museo dell'Opera di Santa Maria del Fiore.

and two articles for those who have been living in a cave for the last couple of weeks....

"Spanish Fresco Restoration Botched by Amateur," BBC News Europe, 08/22/2012

An elderly parishioner has stunned Spanish cultural officials with an alarming and unauthorised attempt to restore a prized Jesus Christ fresco. Ecce Homo by Elias Garcia Martinez has held pride of place in the Sanctuary of Mercy Church near Zaragoza for more than 100 years.

The woman took her brush to it after years of deterioration due to moisture. Cultural officials said she had the best intentions and hoped it could be properly restored. The woman, in her 80s, was reportedly upset at the way the fresco had deteriorated and took it on herself to "restore" the image.

BBC Europe correspondent Christian Fraser says the delicate brush strokes of Elias Garcia Martinez have been buried under a haphazard splattering of paint. The once-dignified portrait now resembles a crayon sketch of a very hairy monkey in an ill-fitting tunic, he says. The woman appears to have realised she was out of her depth and contacted Juan Maria Ojeda, the city councillor in charge of cultural affairs.

Art historians are expected to meet at the church soon to discuss how to proceed. Mr Ojeda said: "If we can't fix it, we will probably cover the wall with a photo of the painting." The fresco is not thought to be very valuable, but has a high sentimental value for local people. To make matters worse, the local centre that works to preserve artworks had just received a donation from the painter's granddaughter which they had planned to use to restore the original fresco.

"Lesson from Spain's Botched Painting: Leave Art Restoration to the Experts," Toronto Star, 08/23/2012

If one lesson comes from the now-viral story of an 81-year-old woman who turned a damaged fresco on a church wall in Spain into an international joke, it's that this is the kind of work you should probably leave to the experts. Experts who have a background in chemistry and a master's degree in the very particular field of painting conservation — not to mention years of experience.

Well-meaning amateur Cecilia Giménez — a parishioner at the Santuario de Misericordia in the small town of Borja — set out to restore the fresco by artist Elias Garcia Martinez, worn over time, to its original glory.

A distraught Giménez told Spanish television station RTVE she'd been asked to fix the painting by a local priest. "Everybody who came into the church could see we were painting," she said, aghast. "We've always repaired everything here."

Circumstances aside, what's clear is that restoring art is an enormously complicated process. Professional restorers in Spain are reportedly en route to offer guidance. The new version has triggered an Internet meme of portraits, some starting with "Your Face Here" and the most popular plastering Rowan Atkinson as Mr. Bean over the damage.

And an Internet petition to keep the new painting exactly the way it is had more than 10,000 signatures by Thursday night. "The daring work . . . is endearing and a loving act, a clever reflection of political and social situation of our time," Javier Domingo of Madrid wrote in launching his petition. The painting "reveals a subtle critique of creationist theories of the Church, as well as questioning the emergence of new idols. The result cleverly combines the primitive expressionism of Francisco de Goya, with figures such as Ensor, Munch, Modigliani or the Die Brücke group."

"Lincoln Conservation Experts to Restore Stained glass Fragments from Coventry Cathedral," This is Lincolnshire, 08/27/2012

Thousands of medieval stained glass fragments which survived the bombing of Coventry Cathedral are being restored to their former glory by a Lincoln conservation firm.

The Old Cathedral of St Michael in Coventry was bombed by the Luftwaffe on November 14, 1940, to almost complete destruction. Its ruins now sit alongside the city's modern cathedral. However, the building's magnificent stained glass survived the Blitz and it was placed into storage in 1939.

Now, Lincoln-based conservation specialist Crick Smith is working with the World Monuments Fund Britain and Coventry Cathedral to restore the surviving pieces and put them back in place. The project involves cleaning and repairing around 5,000 fragments of stained glass, many of which have degraded in storage over time.

Some of the glass was made by renowned 15th century Coventry-based stained glass artist John Thornton. Other pieces date from between the 15th and 19th centuries.

The work is being carried out by a team of experienced conservators, who also lead the University of Lincoln's conservation consultancy division. They are being joined by current students and graduates from the university's conservation and restoration degree programme.

"Ancient Stones Revealed on Tapestry," The Art Newspaper, 08/30/2012

The cleaning of an Elizabethan tapestry map has revealed what may be the earliest depiction of the Rollright Stones, a series of Neolithic and Bronze Age megaliths in the English Midlands. What appears to be a small stone circle is now visible in the lower right-hand corner of the Sheldon Tapestry Map of Warwickshire. Other details, including tiny cottages nestled among the trees, are also now visible.

The textile was cleaned and conserved in 2011 in preparation for its inclusion in the British Museum's exhibition "Shakespeare: Staging the World" (until 25 November). Wet cleaning by the Belgian company De Witt removed four centuries of dirt and dust. The tapestry then returned to the UK for further treatment by Textile Conservation, a company in Bristol.

The studio, led by Alison Lister, removed the non-original lining because it was causing tension in the tapestry. A full backing of undyed linen fabric was then applied and all conservation stitching work was carried out through the new backing. As the textile is a map, the decision was made to reinstate missing areas, particularly the names of the towns.

"Much of the brown-black thread had degraded, so a lot of attention was given to conservation stitching, to make the lettering clearer," Lister says. Conservators found pieces of tapestry woven over holes, which suggests that the textile was repaired early in its history, possibly within 50 to 100 years of being made.

"It looks as if the tapestry was damaged when it was folded up as there are four similar-sized holes. The quality of the weaving and the matching of the design suggests that the repair could have been done by the original studio," Lister says.

"IMA Conservation Science Laboratory Unveils Original State of van Gogh Painting," ArtDaily.org, 08/29/2012

A partnership between the IMA Conservation Science Laboratory and the Cincinnati Art Museum (CAM) has shed new light on the colors that Vincent van Gogh used in his 1890 painting Undergrowth with Two Figures.

Van Gogh was known to use vibrant colors in his paintings but many of his works today have lost this original vibrancy. Undergrowth with Two Figures is one such work and during a cleaning of the work, former CAM paintings conservator Per Knutas unearthed miniscule traces of bright pink colorant in areas where the frame covered the edge of the painting.

This discovery prompted Knutas to contact Dr. Gregory D. Smith, the IMA Senior Conservation Scientist. Smith agreed to help identify the paint colorant used by van Gogh and worked with visiting researcher Dr. Jeffrey Fieberg, Associate Professor of Chemistry at Centre College in Danville, KY, to examine the painting and solve the mystery.

Van Gogh painted Undergrowth within the last five weeks of his life—a period when he was known to have used a bright Geranium Lake organic dye —and the brilliance of Geranium Lake is short lived when exposed to light. Since the pink flowers in the painting rapidly faded to white, the question addressed by the IMA lab was which flowers were white because of the fading, and which ones were always white.

The painting was brought to the IMA for an in-depth, nondestructive analysis. Smith utilized a small broken paint chip found lodged in the varnish to analyze the dye.

After identifying the ink, Smith and Fieberg painstakingly mapped out its location by elemental spectroscopy in the 387 dobs of white paint used by van Gogh to represent the flowers. The team used Adobe Photoshop to record all the spots in which the dyestuff was detected, creating a virtual restoration of the aged painting.

"The Getty and Rome Form Cultural Partnership, Will Exchange Art," Los Angeles Times, 08/13/2012

The Getty Museum has added a new partner in its expanding cultural accord with Italy -- the city of Rome. The museum said it has signed a bilateral agreement with Rome's Capitoline Museums to create a framework for the conservation and restoration of artworks as well as future exhibitions and long-term loans.

The Capitoline Museums are a group of art and archaeological museums that date to the 15th century. They are among the oldest public art museums in the world.

James Cuno, president of the Getty Trust, marked the new partnership with the unveiling of an ancient sculpture titled "Lion Attacking a Horse," which is being loaned to the Getty. The sculpture stands approximately 5 feet tall and depicts a lion pouncing ferociously on the back of a horse. The artwork is believed to date from the 4th century B.C.

The sculpture is scheduled to remain on display at the Getty Villa in Pacific Palisades through Feb. 4, after which it will return to Rome. The Getty already has formed cultural-exchange agreements with museums in Naples and Florence, as well as with the Sicilian Ministry of Culture.

The agreements are part of the 2007 accord between the Getty and the Italian Ministry of Culture in which the Getty agreed to transfer 40 objects to Italy to resolve a protracted legal battle over disputed works of art.

"Getty Helps Finance Conservation of Rubens Panel Paintings," Los Angeles Times, 07/09/2012

The Getty Foundation is helping to fund the conservation of a 17th century masterpiece by Dutch artist Peter Paul Rubens.

"Triumph of the Eucharist" is a series of panels that resides at the Prado Museum in Madrid. The Getty said it has awarded close to $390,000 to the museum for the conservation of the piece. Money for the project is coming from the Getty's Panel Paintings Initiative, which has also helped to fund the conservation of Albrecht Dürer's "Adam and Eve," also located at the Prado.

"Triumph of the Eucharist" dates from approximately 1626 and represents Rubens' designs for a series of tapestries for Isabella Clara Eugenia, a ruler of the Spanish Netherlands. The tapestries hang at the convent Clares de Descalzas Reales in Madrid. Rubens' panels focus on the power of the Eucharist, or the Holy Communion, and the place of importance it holds in Catholicism. The Panel Paintings Initiative was launched in 2008 as a joint effort between the Getty Foundation, the Getty Conservation Institute and the Getty Museum.