

## President's Letter

*Camilla Van Vooren*

I want, first of all, to thank the membership for giving me the opportunity to serve as president for the year 2007. This is indeed an honor, and I hope that I can serve you well. I would like to congratulate and welcome new WAAC Board members: our new Vice President, Susanne Friend, and our new Member-at-Large, Marie Svoboda. Scott Carrlee will be serving a second term as Member-at-Large. I also want to recognize outgoing WAAC Board members: Laura Downey Staneff, our outgoing President, Member-at-Large,

Nick Dorman, and Secretary, Tania Collas, for their contributions to WAAC. On behalf of the Board and myself I extend my gratitude to these individuals and to all the members who were willing to be included on the slate. Thank you, as well, to my competent Nominating Committee: Marc Harnly and Pauline Mohr who helped me put the slate together.

I'm sure that members who attended the annual meeting in Tucson would agree that it was thought provoking and lots of fun too. Special thanks go to the Center for Creative Photography who hosted the meeting and whose staff was so helpful. The opportunity to see the exhibit, *In the American West: Photographs by Richard Avedon* was a real bonus; it's an incredible body of work. The opening reception at the Arizona State Museum drew many attendees, which set a nice tone for the beginning of the conference. The quality of the talks was outstanding overall, and I wish to extend thanks to the conservators from Western Archaeological Conservation Center who, with all the other speakers, contributed to a terrific program and opened their studios for a tour. Again, I wish to acknowledge WAAC's outgoing President, Laura Downey Staneff, for efforts in organizing the meeting and for her tireless dedication to the organization during her tenure.

As you will recall, while we were kicking up our heels in Cody, a devastating hurricane was striking New Orleans. Immediately following the meeting, *Newsletter* editor Carolyn Tallent tore up the near-complete 27/3, and with the help of a number of contributors, including Chris Stavroudis and out-going president Bev Perkins, put together a special edition containing the Salvage at a Glance chart and many other useful articles relating to flood recovery. A significant number of complimentary and discounted issues were sent to the stricken areas and to workshops or conferences dedicated to disaster response. As well, Walter Henry made it available on the AIC website for a limited time. Hats off, too, to Chris, Bev, and all of our colleagues who went to New Orleans or made other contributions in the response to the disaster.

I'm pleased to report on one new action that was presented and approved by the members at the WAAC business meeting in Tucson: henceforth funds generated from the WAAC annual meeting silent auction will be set aside in a special fund for disaster response...an even better reason to keep in the bidding for that fake fur Elvis shirt!

Mark your calendars for the 2007 annual meeting September 14-17 in Denver, Colorado. For those of you interested in a vacation, this time of year is typically wonderful for visiting Rocky Mountain National Park: great for wildlife viewing, spectacular vistas, and the sparkling gold of the aspen trees. Recently, in Denver, there has been much excitement over the opening of the new Hamilton Wing of the Denver Art Museum. Reaction to architect Daniel Libeskind's daring design has been the talk of the town. I am delighted to report that we will be having one day of our 2007 meeting at the DAM. It is truly a significant and powerful contribution to Denver's skyline and has continued to conjure much comment, including a *Denver Post* article reporting on visitors experiencing vertigo while walking through corridors of slanted walls! The rest of the meeting will be held at the Colorado Historical Society, across the street from the Denver Art Museum.

### Contents

<b>President's Letter</b>	1
<b>Regional News</b>	4
<b>Technical Exchange</b>	9
<b>Health &amp; Safety</b>	10
<b>Conductivity Probe Prototype: Measuring Soluble Salt Content on Ancient Ceramics</b> <i>by Lesley D. Frame, Iva Segalman, and Chris White</i>	12
<b>Removal of Arsenic and Mercury Contamination from Materials using a Natural, Environmentally Benign Chemical</b> <i>by Peggy Cross</i>	15
<b>Annual Meeting Presentations</b>	17
<b>Museum Lighting Workshop</b> <i>by James Druzik</i>	21
<b>Membership</b>	21
<b>Jobs</b>	23
<b>AYMHM</b>	24

---

**President's letter, continued**

---

These two institutions share a three-block area with the Denver Public Library, which was renovated to a cheerful post modern building by architect Michael Graves in 1995. This section of town just south of downtown Denver is known as the Golden Triangle and is the location of the state capitol and the city and county buildings, as well. The museums, library, and the historic Byer Evans House are known as the Civic Center Cultural Complex.

The Denver Art Museum traces its beginnings to 1893 when a group of local artists formed the Denver Artist's Club to foster the arts by providing a means of exposure through exhibits and studio space. Exhibit space was established at the public library, the City County Building, and other public spaces. The group expanded to a nearby mansion, the Chappell House (no longer standing) which was to become the home of the Denver Art Museum as the club evolved into a collecting entity. It seems that the DAM realized early on that it would not become a great depository for Old Master works, therefore, in the twenties and thirties, an emphasis on the collection of American Indian artifacts was established. The collection was stored largely in the Chappell House until the late 1940s when the city designated the "museum block" where the museum now stands.

Various expansions and renovations of existing buildings over the next thirty years accompanied the growth of DAM's collections. Substantial additions to the European, Asian, pre-Columbian, Spanish colonial, and American holdings along with the continued growth of the American Indian collection were made. DAM would have to wait until 1971 before it achieved its longtime goal: a new museum building. Designed by the late Italian architect Gio Ponti, the new museum (now known as the North Wing) was shockingly modern for many Denverites. Allegedly in response to the 45-minute attention span statistically established for museumgoers, Ponti designed upward, in seven stories, each level providing an opportunity for the visitor to pass his/her projected attention span. It was considered an innovation in museum design. Its fans, declared the building, "the most distinctive piece of contemporary architecture between Chicago and San Francisco." The building's exterior caused quite a stir: Corning glass tile-covered, asymmetrical twin towers reminiscent of a Renaissance fortress punctured with irregular windows (one critic suggested, an opportunity to pour molten lead on opening day visitors!) and a wall symbolically suggesting a moat. Despite local criticism such as the comparison to "a giant IBM punch card" Ponti was enthusiastic about analogy to a Renaissance castle: a fortress to house the city's cultural treasures.

Enter Daniel Libeskind. From the initial designs and models, it was hard for many of us to envision the physical presence of the eruption of geometric blocks that was to become the Hamilton Wing. Over the past several years, watching Libeskind's first American project take form has been fascinating. Gigantic, jutting forms made many of us wonder how this menagerie of angles could hold an art collection. We were to learn in early October during numerous gala opening events. Predictably, the press review nationwide was mixed, and we all have our own opinions of what works well and what doesn't. Across the board, the exhibition of DAM's contemporary collection, acquired primarily by Curator Diane Vanderlip who will be retiring this year, has had an enthusiastic response. One undeniable fact is that the enthusiasm and spirit in those galleries during grand opening festivities was absolutely charged. The titanium façade makes an interesting complement to the grey glass tiles of Ponti's design; the buildings are physically connected by a glass-enclosed bridge. The addition of the Hamilton Wing to the Denver Art Museum has brought new energy to the cultural district, and I am delighted that WAAC 2007 annual meeting attendees will have the opportunity to experience this and other Denver cultural offerings.

Along with continuing plans for the annual meeting, I hope, in subsequent letters, to continue to feature Denver's evolving art scene as a means of inviting all of you to visit Colorado in September.

**WAAC Newsletter (ISSN 1052-0066)** is a publication of the nonprofit Western Association for Art Conservation (WAAC). It is published three times per year, in January, May, and September. WAAC Newsletter is printed on alkaline paper. Copyright 2005 Western Association for Art Conservation.

**EDITOR**

Carolyn Tallent

**REGIONAL NEWS**

Susanne Friend

**TECHNICAL EXCHANGE**

Albrecht Gumlich

**HEALTH & SAFETY**

Chris Stavroudis

**ARTICLES YOU MAY HAVE MISSED**

Susanne Friend

**COPY EDITOR** Wendy Partridge

**Photocopying**

To make academic course packets that include articles from WAAC Newsletter, contact the authors of the articles directly.

**Note to Authors**

Authors of articles and other contributions accepted for publication in WAAC Newsletter assign to WAAC Newsletter the right to publish their work in both print and electronic form and to archive it and make it permanently retrievable electronically. Authors retain copyright, however, and may republish their work in any way they wish.

**Disclaimer**

The Western Association for Art Conservation does not recommend particular individuals, businesses, treatments, products, or services. WAAC Newsletter is simply a vehicle for the presentation of information from various sources. Publication of articles or reports in the Newsletter should not be construed as an endorsement of their content by WAAC. Opinions expressed in articles published in the Newsletter are those of the authors.

**Deadline**

Contributions for the May *Newsletter* should be received by the Editor before **April, 2007**.

---

---

## 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.

### PRESIDENT

Camilla Van Vooren

### VICE PRESIDENT

Susanne Friend

### SECRETARY

General Information  
New Memberships  
Publication Orders

Teresa Moreno

### TREASURER

Change of Address  
Payments

Chris Stavroudis

### MEMBERSHIP SECRETARY

Chris Stavroudis

### MEMBERS AT LARGE

Scott Carrlee  
Leslie Rainer  
Chris Stavroudis  
Marie Svoboda

### WEB EDITOR

Walter Henry

### PUBLICATIONS FULFILLMENTS

Donna Williams

Individual Membership in WAAC costs \$30 per year (\$35 Canada, \$40 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 \$35 per year (\$40 Canada, \$45 overseas) and entitles the institution to receive the WAAC Newsletter and Membership Directory. For membership or subscription, contact the Secretary.

### Internet

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

---

---

## AIC Offers Emergency Response Team Training

---

Candidates are now being sought to participate in the AIC Collections Emergency Response Training (AIC-CERT) program. A four-and-a-half day workshop on emergency response will be offered in three locations in 2007 for conservators and allied professionals, such as registrars, archivists, librarians, and others responsible for collections.

Training dates are:

May 14-18 in Charleston, South Carolina

October 15-19 in Shepherdstown, West Virginia

November 12-16 in Seattle, Washington

There is no registration fee required for the training, and participants will receive support for travel, hotel, and meals.

The Foundation of the American Institute for Conservation received funding from the Institute of Museum and Library Services (IMLS) to support this advanced training program for conservators and allied professionals that will result in a force of approximately 60 "collections emergency response team" members trained to assess damage and initiate salvage of cultural collections after a disaster has occurred.

Participants will be selected to bring expertise in a variety of specialties and will be trained to a high level in emergency response procedures, damage assessment methods, salvage techniques, and the organization and management of a recovery operation. In return for training, they will be expected to make a committed effort to respond to an emergency when requested by AIC.

Selection of participants will be made on a competitive basis. For application forms, selection criteria, and additional information about the program, please see the education section of the AIC website at [aic-faic.org](http://aic-faic.org), or contact Eric Pourchot, AIC Professional Development Director, at 202-452-9545, ext. 12; [epourchot@aic-faic.org](mailto:epourchot@aic-faic.org).

### Change in Treasurer's position

Batyah Shtrum, WAAC Treasurer, has recently accepted a nine-month contract position at the Metropolitan Museum in New York. The WAAC Board has reluctantly accepted Batyah's resignation, thanks her for her service to WAAC, and wishes her all the best in her new position.

Effective immediately, Chris Stavroudis (once again) will take over the duties of WAAC Treasurer. Renewals, membership questions, and any payments to WAAC should be sent to Chris at:

WAAC Treasurer  
c/o Chris Stavroudis

The rest of the WAAC Board extends our gratitude (once again) to Chris for being willing to take on this extra task at short notice.

**Members should be aware** that they may receive a 2nd notice regarding membership renewal if receipt of their dues payment, sent to Batyah, is delayed by the Post Office mail forwarding system. We apologize for any confusion or annoyance this may cause.

---

---

## Regional News

---

### ALASKA

**Ellen Carrlee** has been hired as the new conservator at the Alaska State Museums. She is taking over the position from **Scott Carrlee** who is now the Curator of Museum Services. Scott will be doing field services full time now helping museums around the state with preventive conservation, collections care, and general museum functions through workshops, site visits, and grants. Ellen is very happy to be back doing conservation full time after 5 years as the Curator of Collections and Exhibits at the Juneau Douglas City Museum. Scott became a Fellow of the AIC in August.

**Monica Shah** is currently traveling around India.

**Emily Ramos** recently visited Juneau for an arts awards ceremony with the Governor.

*Regional Reporter:*  
Scott Carrlee

### ARIZONA

**Martha Grimm** has been elected to a two year term as National Secretary of the Costume Society of America organization. She serves not only as secretary of the Board of Directors but also as secretary to the Executive Committee. The Costume Society is an organization dedicated to the scholarly study of all aspects of dress and appearance.

The Western Archeological and Conservation Center (WACC) hosted a 5 day materials characterization course prior to the 2006 WAAC conference in Tucson. Two tours of the center were conducted before the opening of the WAAC conference. Participants were toured through the objects and archives repositories in addition to the conservation labs.

WACC conservators welcome **Maggie Kipling** to the labs. Maggie will be working on the conservation of pre-

historic ceramic vessels from Tuzigoot, Montezuma Castle, and Lake Mead, in addition to treating archeological textiles from Montezuma Castle.

**Brynn Bender** and **Audrey Harrison** continue work with the Grand Teton's Vernon collection of ethnographic objects from over 200 tribes. The lab once again hosted Shoshone beadwork expert **Laine Thom** who is assisting with identification of tribal associations and materials of manufacture for this important collection.

**Gretchen Voeks** is continuing her work with a preservation plan for Kaluapapa National Historic Park's cemeteries, and a collection management plan for the Grand Tetons National Park. Gretchen and Brynn recently traveled to Glacier National Park to write a collection condition survey.

The ASM hosted the opening reception of the 2006 annual WAAC meeting during which meeting attendees were able to tour the museum's new conservation lab, climate controlled pottery vault, and pottery interpretive area, which are finally in the last construction stages. **Nancy Odegaard** and **Teresa Moreno** have been overseeing the Pottery Project, the construction, and the move into the new facility.

Nancy, AIC President, has been working with the AIC Board to prepare a terrific 35<sup>th</sup> Anniversary AIC Annual Meeting, April 16-20, 2007 in Richmond Virginia. She retires from the board at this meeting.

Teresa will continue on as WAAC Secretary for 2007.

**Chris White** is progressing with his role on the Pottery Project and is preparing the new climate controlled storage facility for the museum's collection of 20,000 whole vessels. The move of the collections into the new vault has begun! Administrative Assistant **Sonya Issaeva** and interns **Martina Dawley**, **Melissa Kingston**, **Israel Favela**, and **Jen Evers** are all assisting on the Pottery Project. Chris is also continuing adhesive and residue identification and will resume treatments now that the new lab is up and running.

Nancy, **Maggie Kipling**, and **Israel Favela** continued XRF analysis for pesticides on the Navajo textile collections.

Teresa, Sonya, Jen, and Mel are working on a rehousing project of a collection of 15,500 cellulose nitrate negatives from the museums photo archives.

**Caitlin O'Grady** has been awarded a Kress Fellowship at ASM. She is doing conservation and scientific analysis on objects being prepared for the *Journeys of Our Ancestors* exhibit.

**Odile Madden** is continuing her research at the Smithsonian's MCI and NMAI on pesticide standards for portable XRF analysis.

*Regional Reporter:*  
Gretchen Voeks

### GREATER LOS ANGELES

**Susanne Friend** and **Duane Chartier** welcomed **Pamela Skiles** in October to ConservArt Associates, Inc. as the new associate painting conservator. Pamela left the Oakland Museum in May to relocate to the Los Angeles area. **Alyson Souza** has left ConservArt to pursue her career as an artist.

Sculpture Conservation Studio just completed the conservation of a 1930 colorful terrazzo floor with a sunburst pattern, in the lobby of a building in downtown Los Angeles that is being converted to condominiums. **Viviana Dominguez**, **Traci Lucero**, and **Gabrielle Tieu** are completing the conservation of the art deco lobby of the old Desmond building in the mid-Wilshire district.

SCS has also completed an assessment for the city of West Hollywood of their public art and policies. The city of Inglewood has finally started construction of the wall in Grevillea Park where the WPA *The History of Transportation* mural will once again be visible to the public. SCS

is completing the restoration of the second "lost panel" according to the artist's drawings and looking forward to the installation of the 60 panels and dedication in the Spring 2007.

**Victoria Blyth Hill** spent three days at the Virginia Museum of Fine Arts in Richmond last November conducting a survey of their important Tibetan and Nepalese thangka collection. She is also working with curator Jane Livingston on media identification of a group of drawings by Richard Diebenkorn from the collection of the Norton Simon Museum. Ms. Livingston is writing the catalogue raisonné on Diebenkorn's drawings.

**John Griswold** and **Dave Harvey** spent over two weeks at the Metropolitan Museum of Art supervising the installation of the Daffodil Terrace for the exhibition *Louis Comfort Tiffany and Laurelton Hall, an Artist's Country Estate*. Griswold Conservation Associates were the lead conservators for the team, partnering with Mark Rabinowitz of Conservation Solutions, Inc. in Washington, DC to stabilize and reconstruct the immense terrace and fireplace. The conservation effort on both coasts began over two years ago. After the exhibition, the pieces will be returned to the Morse Museum of American Art in Winter Park, Florida, where they will eventually be put on permanent display in a new wing.

John Griswold, **Denyl Cloughley**, and pre-program intern **Megan Barkey** have been implementing GCA's phase I treatment recommendations for the gilt and polychromed 17th-century Spanish reredos at Mission San Juan Capistrano, removing layers of modern metal leaf and metallic paint to expose the original burnished water gilding, including several areas of silver leaf and estofado decoration. John is also completing a treatment feasibility study of the first non-indigenous stone sculpture in California on the facade of the Royal Presidio Chapel, San Carlos Cathedral, in Monterey. John presented preliminary findings regarding the 1794 polychromed slate relief carving of Our Lady of Guadalupe at the Monterey History Symposium in October.

**Axel Börner**, a guest conservator from the Alte Galerie in Dresden, worked in the paintings conservation studio at the Getty

for four months beginning in September of 2006. His work included the study and treatment of two very early Canaletto paintings from the Dresden collections. Both paintings are now on view in the galleries at the Getty Center.

**Mark Leonard** will be finishing the retouching of Jean-Baptiste Oudry's life-size portrait of a *Rhinoceros* (affectionately named Clara during her journeys around Europe in the eighteenth century) in one of the exhibition galleries in January. There will be scheduled discussion periods with visitors to the museum. The finished painting will be included in an upcoming exhibition at the Getty, *Oudry's Painted Menagerie*, opening in May of 2007.

**Tiarna Doherty** has been spending time at St. Catherine's Monastery in Egypt helping with the preparation for the *Holy Image, Hallowed Ground: Icons from Sinai* exhibition on view until March 4<sup>th</sup>.

**Sue Ann Chui** will be publishing an article on a 15th-century Italian professional standard in the forthcoming *Walters Art Museum Journal*. A similar version of the paper will also appear in the next *PSG Postprints*.

**Alan Phenix** has joined the Getty Conservation Institute as Scientist in the Museum Research Laboratory.

**Janice Schopfer** joined the Conservation Center at LACMA in January 2007 as Senior Paper Conservator. Janice comes to LACMA from the Fine Arts Museum of San Francisco, Legion of Honor after 22 years of service.

**Chie Ito** completed her second year Andrew Mellon Fellowship at LACMA in September 2006 and began her Kress Fellowship in Conservation at The Lu-Esther T. Mertz Library at the New York Botanical Garden in October 2006.

**Chail Norton** covered the paper conservation lab at LACMA while **Soko Furuhata** returned to Japan for a 4 week business trip and vacation.

**Stephanie Jewell**, a senior at Loyola Marymount University, is in a year-long pre-program internship at the Conser-

vation Center, LACMA, working with **Frank Preusser**, **Catherine McLean**, and **Chail Norton**. During her internship, she is assisting with the study of air borne particles in the costume exhibition, *Breaking the Mode*, and assisting with various paper conservation projects, including the surface cleaning of drawings by Erté.

*Regional Reporter:*  
Virginia Rasmussen

## NEW MEXICO

The big news from the Conservation Department of the Museums of New Mexico is **Mina Thompson** and husband, Caleb, and big brother, Miles, welcome their new baby girl, Cora Gregory Thompson, born October 31, 2006. Mina will be on maternity leave until February 2, 2007.

The lab welcomes third year intern **Anya McDavis-Conway** from Wintherthur. Anya began in September assisting her supervisor, Senior Conservator **Maureen Russell**, cleaning and waxing bronze sculpture at the Museum of Fine Art's (MFA) outdoor sculpture garden. She also assisted Maureen with two unusual treatments for an upcoming exhibition at the Governor's Gallery about New Mexico's Lowrider culture titled, *Driven to Distraction*; a 1940 Harley-Davidson motorcycle and a Lowrider bicycle. She has been stabilizing several archaeological ceramic vessels for the Museum of Indian Arts and Culture (MIAC) for a large exhibition, *The Secrets of Casas Grande*, with lead conservator **Larry Humetewa** and the other objects conservators in the lab.

Maureen Russell will be traveling to Cairo, Egypt to work at the Cairo Museum for several weeks teaching and consulting with museum staff. She will also be working on the reinstallation of the Pre-Dynastic galleries.

**Conor McMahon** is currently busy with several projects. He is working on a con-

---

## Regional News, continued

---

dition survey funded by a Getty Grant of the Kuaua murals as well as working on a research project with the National Park Service at Bandolier Monument with conservator Larry Humetewa. Conor also continues to work with the New Mexico State Monuments and the Palace of the Governors.

**Rebecca Tinkham** held a one day, in-house workshop on making storage mounts for the hats in the collection of the Palace of the Governors. This was the first in a series of workshops which will train Palace personnel as they continue to rehouse the clothing and textile collection in preparation for moving into modern storage facilities at the future New Mexico History Museum. Rebecca continues to survey the clothing and textile collection of the Palace in an increasingly cold basement hoping to reach the 2,000th object mark before having to break for the winter. She has also completed conservation treatment on the gowns worn by the wife and daughter of the first governor of the state of New Mexico at his inauguration in 1912.

Director of Conservation, **Claire Munzenrider**, retired in August, 2006 after 26 years. She will be working as a conservation consultant and in private practice.

**Conservation Solutions, Inc.** (CSI), in conjunction with Griswold and Associates, recently completed the conservation treatment of the fireplace, columns, and capitals from the Louis Comfort Tiffany Long Island country estate, Laurelton Hall. The treated pieces were crated and shipped to the Metropolitan Museum of Art in New York City where they will be part of a Tiffany exhibit that runs through April of 2007.

CSI is also involved in the start-up of several projects that include: the restoration of exterior metals at the US Postal Museum; the conservation of the immense granite *Haupt Memorial Fountain* located on the White House grounds; and on-going work on the exterior facades of the Ross administrative building of the US Holocaust Monument Museum, all of which are located in Washington, DC. Additionally, CSI continues work on Fort Christian, a 17<sup>th</sup>-century fort located on St. Thomas in the US Virgin Islands.

This past summer CSI returned to the Biltmore Estate in Asheville, NC to perform a conservation treatment on a 16<sup>th</sup>-century Italian wellhead and the training of the Biltmore staff on how to maintain their outdoor sculpture collection. CSI also completed the treatment of over 100 artifacts from the RMS Titanic wreck-site that were recovered during the 2004 expedition. More recently, CSI has begun a conservation assessment of artifacts recovered from the pirate ship *Whydah* which is scheduled to go on public display some time later this year.

CSI also continues to have a presence on the lecture circuit where **Joe Sembrat** and **Patty Miller** presented "Preserving the Space Age: The Conservation of Saturn V Rockets" at the APT 2006 Annual Conference. They were also invited speakers at the symposium "Corrosion & Preservation of Historic Artifacts," hosted by the NACE International, the Smithsonian Institution's Museum Conservation Institute, and the Washington Conservation Guild.

**Jo Anne Martinez Kilgore** and **M. Susan Barger** have been certified as Institutional Protection Managers by the Certification Committee of the International Foundation for Cultural Property Protection.

M. Susan Barger participated in a panel at the AASLH annual meeting in Tucson on advocacy for small museums with Kristin Laise of Heritage Preservation and Sharon Lien of the Deming (NM) Luna Mimbres Historical Museum. Susan also chaired a session on infrastructure improvements in small museums at the Mountain Plains Museums Association in Taos. In November, she ran a workshop on textile preservation at the Silver City (NM) Museum.

**Nancy Thorn** at Gold Leaf Restoration completed the restoration of the ceiling in the north entry for the 1937 Cherberg Building on the Olympia State Capitol Campus. The original finish was a painted decoration over aluminum leaf and had been overpainted. Most of the overpaints were successfully removed, while some areas required re-gilding and reproduction of the original painted design.

*Regional Reporter:*  
M. Susan Barger

## PACIFIC NORTHWEST

A panel discussion titled "Art, Artifacts, and Authentications: The Conservator's Side of the Mystery" took place in October at the Jordan Schnitzer Museum of Art (University of Oregon in Eugene). This public presentation was organized in conjunction with *Faux or for Real: The Art of Researching Art*, an exhibition dealing with issues of fakes and copies. The panelists included conservators from Portland, Corvallis, and Eugene:

**Jan Cavanaugh** (Paintings Conservator, Portland), "The Science of Conservation: Some Background and the Case of Rembrandt,"

**Marie Laibinis-Craft** (Objects Conservator, Portland), "The Case of the Han Dynasty Tomb Pillar: Establishing Authenticity Using Thermoluminescence Dating,"

**Thomas Fuller** (Objects Conservator, Corvallis), "Layers of History: The Conservation of Archaeological Materials,"

**Susan Lunas** (Books and Paper Conservator, Eugene), "Fakes and Flakes,"

**Elizabeth Chambers** (Paper Conservator, Portland Art Museum), "Analytical Conservation Realities in a Small Pacific Northwest Museum of Art."

**Dana K. Senge** has settled in the Seattle area and is establishing her objects conservation practice, DKS Conservation Services, LLC. Her past few months have centered on discussions with several institutions in the area to learn about current conservation and preservation practices in the small museums and historical societies in the region.

*Regional Reporter:*  
Peter Malarkey

---

---

## Regional News, continued

---

### ROCKY MOUNTAIN REGION

**Mark Minor** and his assistant, **Jeremy Petersen**, finished the stabilization of the choir loft of the Santa Ana de la Hoya church this October. The church is a beautiful, late 17th-century Jesuit mission in the foothills of the Sierra Madre, some two hours south of Chihuahua. Mark has also moved a few miles down the canyon from Salida, and now can be found at 689 CR 4, Howard, CO, 81233. His studio number is 719 942-4609.

**Karen Jones** presented a history of bookbinding and the book arts in the Rocky Mountain West at the Guild of Book Workers centennial convention in NYC, in October.

**Paulette Reading** has left her position at the Denver Art Museum to stay home with her 15-month old son. She has been doing textile conservation for private clients as time allows.

The **Western Center for the Conservation of Fine Arts** is pleased to announce that **Cynthia Lawrence** has joined the staff. **Camilla Van Vooren** presented a paper on the life and work of Nicolai Fechin at the Mountain Plains Mus. Assn. Annual Meeting in Taos in September.

The **Conservation Dept. of the Denver Art Museum** is delighted to report that we survived the big opening events for our new 146,000 sq. ft. addition designed by architect Daniel Libeskind. 48,900 people visited the museum during the opening weekend and preview festivities. Thanks to good planning and a lot of staff in the right places, no significant damage occurred.

All conservators are currently working on the IMLS-funded collections move and rehousing project. About one-third of the museum's holdings will be moved to a new storage facility in our new addition. Since many of these are over-sized contemporary paintings without frames, there is a lot of preparation needed.

**Gina Lauren** will continue in a contract position at the DAM for most of 2007. She is currently working on rotation pieces for the new African and Oceanic installations.

Third-year intern **Julie Parker** from Buffalo State College is developing a digital imaging protocol for the lab. She is also doing an extensive conservation treatment on Chief Iron Tail's headdress from the Buffalo Bill Museum and Grave.

Reorganization has resulted in new job titles. **Carl Patterson** is now officially the Director of Conservation at the Denver Art Museum. **Jessica Fletcher** is the Associate Conservator, and **Kristy Jeffcoat** and **David Turnbull** are both Assistant Conservators.

*Regional Reporter:*  
Paulette Reading

### SAN FRANCISCO BAY AREA

**David Wessel** of Architectural Resources Group (ARG) and **Katharine Untch** of ARG Conservation Services (ARG/CS) recently completed a web-based computer model of the Watts Towers to synthesize previous condition and other historic documentation related to the site. Assisting with the project was ARG/CS Historic Architect **Glenn David Mathews** and Conservation Technician **James Cocks**. James and Katharine completed a survey of monuments for the San Francisco City Arts Commission and treated *Lotta's Fountain* in time for the 1906 San Francisco Earthquake Centennial celebrations.

**Amila Ferron**, an architectural conservation student at the University of Pennsylvania, recently completed a summer internship at ARG/CS and assisted with paint analysis at the Howard Hughes aircraft hangar at Playa Vista and stabilizing a mural wall at the Allied Arts Guilds in Menlo Park.

ARG welcomes new employee **Mary Slater**, an architectural conservator with a degree from the University of Pennsylvania Architectural Conservation Program and formerly at the National Parks Service working at Bandelier National Monument. ARG also welcomes back **Kelly Wong**, a recent graduate of

the University Pennsylvania program previously working with ARG's architecture group. Mary, Katharine, James, and Kelly have all recently been working on documenting interior décor at the New Mission Theatre in San Francisco.

**Alina Remba** was recently awarded a Fulbright Senior Specialist Grant to teach a two-week seminar on conservation of contemporary paintings at the Instituto Superior de Conservación y Restauración Yachay Wasi in Lima, Peru. Earlier this year, she traveled to Portugal at the request of Ana Calvo, Chair of the Art Conservation Department of the Universidade Católica Portuguesa at Porto as a Visiting Professor. She lectured to Post-Graduate students on contemporary art conservation.

**Charlotte Ameringe**, Associate Paintings Conservator at the Fine Arts Museums of San Francisco for the past five years, has accepted an associate paintings conservator position at the Museum of Fine Arts, Boston. She will be greatly missed by her colleagues in San Francisco, and we wish her the best in this wonderful new position.

**John Burke** at the Oakland Museum of California directed the move of the museum collections into a new 60,000 sq. ft. climate-controlled facility and an NEH Preservation Grant for installation of compact storage, as well as completion of nitrate negative cold storage. The move, which included rehousing and cleaning of collections, was completed in December, 2006. John also recently taught a workshop on modified atmosphere treatments at the Tainan National University of the Arts in Taiwan, and is currently preparing recent volumes of the *JAIC* for online delivery.

**Milada Machova**, Paintings Conservator at the Oakland Museum, has been busy surveying the condition of the painting collection selected for reinstallation after the Museum renovation. In the meantime she helped with the preparation of the Arthur and Lucile Mathews' paintings and frames for exhibit, while also attending to the demands of community private collectors.

**Susan Roberts-Manganelli** is taking a personal leave of absence from the Can-

---

---

## Regional News, continued

---

tor Arts Center for seven months from mid-December to August, to work and live in Sharjah City, in the emirate of Sharjah, United Arab Emirates. She will manage and train staff, develop museum infrastructure, and plan work spaces at the Art and Contemporary Arab Art Museum, one of 7 museums in the Sharjah Museums Department. The museum is currently busy collecting 19th-c. Orientalist paintings and works on paper besides contemporary art. In the spring, she will be involved in the collections' move from the old to the new Islamic Museum on the waterfront (Sharjah is next door to Dubai, the Indian Ocean, the Arabian Sea, desert, and oases).

**Will Shank** is preparing a didactic version of an exhibition of which he was curator at the Guggenheim Museum Bilbao in 2004-05, for the Koret Education Center at SFMOMA. It will open the Koret Center's new galleries in February 2007. *A Hidden Picasso* tells the story of a repainted canvas from 1900, SFMOMA's *Rue de Montmartre*, which hides a prototype for the nineteen year-old Picasso's first masterpiece in Paris, *Le Moulin de la Galette*, from the same year.

Working with **Tim Svenonius** of the SFMOMA education department, Will was able to recreate the almost-complete, hidden image in color by extracting the colors visible through the surface cracks and applying them digitally onto the black-and-white radiograph. Will, who is now based in Barcelona, attended an N.Y.U. conference at Villa La Pietra in Florence that commemorated the 40th anniversary of the 1966 flood in November. He also was invited to attend a symposium about the technique and conservation of the paintings of Morris Louis which was held in December in Atlanta during an exhibition of Louis' paintings at the High Museum.

*Regional Reporter:*  
Beth Szuhay  
Associate Conservator, Textiles

### SAN DIEGO

**Beverly Perkins** carried out a CAP survey for the 'Iolani Palace collection. While she was in Hawai'i, she taught a day-long workshop on conservation 101 to members of the Hawai'i Museum Association. The workshop explored working with a conservator, examination and determination of condition, documentation, ethics, and treatment options. Beverly also taught the collections recovery component of the Collections Management course given to California State Park Employees. Bev is writing this from Cody, Wyoming where she is working on the collections at the Buffalo Bill Historical Center. Bev's new email address is Perkins.b@ca.rr.com.

*Regional Reporter:*  
Francis Prichett

### TEXAS

**Maria Sheets** recently organized a group of local volunteers and conservators in Dallas, including **Stephanie Grant, Philip Martin, Laura Pate, Brad Smith, Betsy Manship, and Melanie Sanford** for an Angel Project that helped clean four 9/11 commemorative sculptures by artist John Collier which are due for an exhibit at the Longview Museum. The Angel Project was covered by both CBS and the Dallas Morning News.

Maria continues her work on the fire recovery of the Biblical Arts Center in Dallas. The Biblical Arts Center is rebuilding and will include a full conservation lab that will be on display to local patrons. They are trying to make the best of what will be a long recovery from a devastating 6-alarm fire that was in June of 2005 by showing the slow process of cleaning as well as educating the public about conservation in general.

Having finished the conservation treatments of seven more paintings by A. R. Gurrey (two are double sided oil on board paintings) for the Kaua'i Museum,

**Gregory Thomas** is starting other projects. One such endeavor includes evaluating the merits of using anti-reflective, ultra-violet filtering and additionally optional non-splintering glazing, as a replacement for existing traditional picture frame glass over charcoal/chalk/pastel media on paper for a private art collection. These glazing products have been available for many years, e.g. Amiran TN and Mirogard Plus from Schott North America.

On July 29th, **Mark Van Gelder** participated on a panel, along with three local artists, as a guest speaker at a workshop put on by the city of Austin's Art in Public Places program. The workshop topic was educating artists about how to successfully make the transition from interior, gallery art to the public art realm. His comments focused on the considerations related to insuring the durability of artwork in a public environment, from initial testing of materials to local community involvement.

Korean paintings conservator, **Nancy Lew**, continues to volunteer in paper and book conservation at the Harry Ransom Center at the University of Texas at Austin under the supervision of **Stephanie Watkins** and **Olivia Primanis**, respectively.

Stephanie will be attending the joint AIC-PMG & ICOM-CC Winter meeting for photograph conservators in Rochester, NY between February 21-25, 2007.

The Harry Ransom Center at the University of Texas at Austin is celebrating their 50th anniversary with parties beginning at the end of January 2007. See [www.hrc.utexas.edu/50](http://www.hrc.utexas.edu/50) for the ongoing public events.

*Regional Reporter:*  
Ken Grant



## Another nebulizing option

The arrival of two pieces with powdery, flaking pigment to the objects lab of the Nelson-Atkins Museum of Art caused us to look into the various tools for nebulizing liquids. While there is a fair amount of literature on various methods of delivering a fine mist of moisture or adhesive to a desired area, many of these modified tools can be frustrating and unreliable. Based on a suggestion from Nancy Odegaard of the Arizona State Museum, we decided to try working with an asthmatic nebulizer.

Asthmatic nebulizers are made to disperse a viscous medicine into a fine mist- and do work well with many dilute adhesives. There are many different styles of asthmatic nebulizers out there; all require a source of compressed air--some styles are sold with a small air compressor while others are not. Based on Sandra Grantham's experiences described in "Painted Japanese Paper Screens: the consolidation of paint layers on a paper substrate" published in *Broad Spectrum: studies in the materials, techniques, and conservation of color on paper* we chose to work with the Sidestream nebulizer manufactured by Respirationics.



The Sidestream nebulizer is an inexpensive unit (\$13.00 on ebay!) that consists of a hose attachment, small container, an oscillating unit, cap, and removable dispensing component (or mouth piece). This means, of course, that a separate air compressor is required. Depending on the attachment mechanism of the compressor the hose may require an additional connector. However, in our testing and treatment we used an Air-Medea Silent Compressor model AM-1000 made by Medea Airbrush Products, which allowed for a direct connection of the hose to the compressor.

The 'mouth piece' can be a little limiting- although nice and wide to disperse the nebulized liquid, it can only be used upright. Tilting the container and oscillating unit can cause drips of liquid. Replacing the mouthpiece with Tygon tubing or other hose creates a flexible delivery mechanism. Testing of this modified delivery system consisted of bending the hose to form a U-shape. The intention was to collect droplets of liquid in the curve of the U to prevent drips. This did not seem to be a problem in testing or during use. We found this method of creating and delivering a nebulized liquid simple, inexpensive, and fairly reliable.

Dana Senge

## Efflorescence Test Kit

Sigma-Aldrich's Subsidiary, Fluka, offers the "AQUANAL® Analytical case for building restoration," part of their Aquanal line of mobile water analysis kits. The kit tests for chloride, total hardness, magnesium, nitrate, sulfate, and sulfide.

The test results are quantitative and require a small spectrophotometer which is purchased separately. The kit costs \$612.00. The spectrometer is \$708.00 (Spectro 1) or \$978.00 (Spectro 2). (See [www.sigma-aldrich.com/aquanal](http://www.sigma-aldrich.com/aquanal).)

Chris Stavroudis



## Microfiber cloths

A microfiber cloth, dry or lightly dampened, does a very good job of removing "ghosting" around fills, and is so soft it won't abrade the tenderest varnish or paint film.

Carolyn Tallent

## Mixing two component epoxy (liquid adhesive)

Here is a hassle-free way to mix two (liquid) components, like Hxtal (NYL-1) epoxy resin and hardener:

You can save some clean-up work by mixing the liquid components in a small plastic bag instead of a jar. I use a 4" x 6" "Reclosable Bag" which we get from University Products. This 2-mil zip lock bag is resistant enough to mix the components thoroughly. Any sturdy sandwich bag will probably do the same job.

Simply line your chemical beaker with the small plastic bag. Add the accurate amount of each component according to instructions. Remove bag from beaker. Close zip lock after removing most of the excess air in the bag. Mix thoroughly by massaging (or kneading) the bottom of the bag, always squeezing the escaping mixture back into one corner.

Use an applicator with the desired shape of tip to remove small quantities through the zip lock opening at top. Alternatively you can cut a tiny tip of the corner at the bottom with a scalpel if it seems appropriate to use the bag itself as adhesive applicator.

Advantages: No dirty beaker or jar. Less air bubbles in the mixture. Easy transport during wet life (open time). Easy disposal of hardened leftover. Don't forget to clean the scalpel or applicator tool immediately after use.

Albrecht Gumlich



---

---

# Health and Safety

Happy New Year one and all!

---

About a year ago, nearly to the day, I was replacing a light fixture in our bathroom and cracked the mirror -- a long, serpentine, running crack from upper left to lower right. I'm not superstitious, but one has to wonder about something so ominous happening on January 2<sup>nd</sup>.

So, I've been extra careful for the last year, not wanting to have anything terrible happen that could be blamed on the bad luck generated by my mirror misadventure. (I'm assuming the bad luck is amortized over the seven-year contract and that the consequences of my clumsiness diminish over time, thus allowing me to talk about it after surviving the first year.)

So it was with an extra sense of urgency that I changed all the batteries in our smoke detectors last year and again this year. Likewise, I rechecked my emergency supplies. I realized that I have lost my camping water filtration device (mentioned in this column, September 2005) that is part of my backpacking gear / emergency response kit. (I'm ordering another online as I write this.)

So, even if you haven't broken a mirror, I would encourage you to sit back and think about your own health and safety. In the last year, what have you done to improve both?

When you work on a project, or better, when you plan a project, do you consider the personal safety ramifications for you? For your co-workers? For the planet at-large? Do you think about potential hazardous materials that may be a part of the piece you are working on? Lead? Arsenic? Pesticide residues? Cadmium? Mold toxins, spores, or allergens?

Are you breathing fumes you shouldn't? Are you using solvents you shouldn't? Do you know the health hazards of the solvents you are using?

What about ergonomics? Are you being good to your body while working? (I wasn't! I lifted and twisted while picking up a large painting and have been regretting that lapse for the last couple of weeks.) Not to sound too much like an old codger, but: You youngsters out there -- your easily ignored injuries in youth come back to torment you in your middle and later years. So take care of your physical plant now. (Guess who turned 50 last year.)

Do you have access to a HEPA filtered vacuum? Do you use it?

There is a new, albeit expensive, HEPA vacuum on the scene. The manufacturer, Hazard Technology, has solved one of the dirty little secrets of vacuuming hazardous waste -- changing the filter bag can expose you to the very hazards you are trying to contain.

When working with truly hazardous waste (arsenic, lead, asbestos, etc.), the removal and containment of the stuff inside of the vacuum is problematic, to say the least. Nilfisk recommends changing the filter bag inside a very large glove-bag. There is still the issue of contaminating the exterior of the vacuum while opening the interior. There is also the problem of the filters between the collection bag and the HEPA filter having been contaminated.

Hazard Technology's "Containment Vacuum" solves this problem by replacing the filter bag with a HEPA filter. It's expensive, but you throw away the HEPA with the stuff that's been vacuumed up. There is a second HEPA filter on the exhaust, so the Containment Vacuum is every bit as clean as a Nilfisk. The really cute trick is that when you open the vacuum to remove the disposable HEPA element, you keep the vacuum turned on, keeping the crud in the filter in the filter. A cap/plug is placed over the opening of the HEPA filter before the vacuum is turned off. Thus the contaminant is completely contained.

The bad news: this puppy is pretty pricey. The unit sells for \$2,075.00, including all of the amenities. You can request a hose with an air-bleed, but this is not standard. The vacuum does not come with a motor speed control, however running the unit with a speed controller will not harm the vacuum's motor. The filters cost \$205.00. For non-hazardous vacuuming, the HEPA filter/collector can be replaced with a paper bag filter. When using the paper filter, you are still protected by two pre-filters and the HEPA exhaust filter to clean the air stream before it is released back into your breathing zone.

One more possibility that the changeable HEPA containment filters allow: You can have different filters for different classes of hazardous waste. The filters can be stored and switched until full and ready to be disposed of. This also allows different hazardous wastes to be kept segregated which might help with disposal.

While a conventional paper filter bag is inexpensive, if you add the cost of the glove-bag necessary to safely change that filter bag; the additional disposal cost of the glove-bag and the wipes to clean the outside of the vacuum; and the time to change the filter in a glove-bag, the cost of the disposable HEPA filter/collector may not be as exorbitant as it sounds. (OK, the time is money argument doesn't really sound that credible for conservators, but the glove-bags run about \$50 each.)

The unit is rather large -- 18.25 pounds and 43 inches tall on its wheeled cart. You should also know that the design necessitates that the hose plug into the top of the unit preventing the vacuum from being pulled around by the hose.

The specs for the vacuum, for those of you keeping score at home: Airflow: 80 CFM; Waterlift: 90.2"; Filter capacity 0.67 gal; Wet/Dry: dry; Filter Efficiency 99.99% @ 0.3 microns; Weight: 18.25 lbs; Motor: 1.4 hp; Noise level: 61 dB; # Filter Stages: 4.

For more information, contact: Hazard Technology; (800) 852-3698, [www.hazardtechnology.com](http://www.hazardtechnology.com).

Oh, and Hazard Technology also makes portable and vented fume hoods and down draft tables fitted with activated charcoal (to removed organic solvent vapors) and/or HEPA filters.

---

---

*Chris Stavroudis, column editor*

---

Using a HEPA filtered vacuum in the conservation studio for general clean-up insures that any hazardous crud that may have made its way into you lab will not make its way into your breathing zone while cleaning up. The reason this is important is body burden.

Health hazards are synergistic. Exposure to two hazards is worse than being exposed to each separately. Each exposure adds to our body burden, making the next exposure slightly worse than it would otherwise have been. In these modern times we are so heavily exposed to toxins that we need to be extra careful about work exposures. Our bodies are truly burdened.

The extent of the body burden in modern humans is documented in the October 2006 issue of *National Geographic*. It makes for fascinating and frightening reading. "The Pollution Within" by David Ewing Duncan (with photographs by Peter Essick) documents the author's "journey of chemical self-discovery." The tag-line for the piece is: "Thanks to modern chemistry, eggs don't stick to the pan, underarms are fresh all day, SUVs hit 60 in six seconds. But such convenience has a price: Chemicals that suffuse modern life – from well-known toxins to newer compounds with unknown effects – are building up in our bodies and sometimes staying there for years."

*National Geographic* paid for the author to be tested for the presence of 320 chemicals, retail value \$15,000. The tests required 14 vials of blood, as well as urine. (He tells of feeling woozy during the blood draw.) Of the 209 PCBs tested for, 97 were detected in the author's blood. 25 PBDEs (polybrominated diphenyl ethers) of the forty tested for were detected; 16 of 28 pesticides, 10 of 17 dioxins, all 7 phthalates tested for were found, 7 of 14 PFAs (perfluorinated acids) and 3 of the 4 heavy metals were found. Neither of the two bisphenols tested for were detected in his blood.

One of the more disturbing images in the article is an x-ray of a child's abdomen showing white (x-ray opaque) flecks in her intestines – ingested lead-based paint flakes.

The PFAs come from non-stick coatings on cookware, Scotchguard fabric protector, and probably other sources. Scotchguard was taken off the market because 3M became concerned by the release and buildup of PFAs in the environment.

Perhaps one of the most surprising test results were the PBDEs which are used as flame retardants. The author tried to determine the source of his high levels of these contaminants. The PDBEs, the experts concluded, came from his frequent flights in commercial airliners. The seats are still made of flammable materials, but now they are heavily treated with PBDEs to prevent them from burning in a disaster.

One of the more frightening experiments the author, not normally a fish eater, performed on himself was to dine on fish and have his blood re-tested for mercury. His level went from 5 µg/l before to 12 µg/l after having halibut for dinner and swordfish for breakfast. (The fish were caught off the San Francisco coast.)

There are many themes in the *National Geographic* article that will sound familiar to readers of this column – estrogen mimics (xenoestrogens); dioxins; lead, arsenic and mercury; phthalates; pesticide residues. The reason I mention the article here is to remind us that all of these nasty things are already present in our bodies. That may mean that we have a whopping body burden before we even step into the conservation studio. Add to that any occupational exposure from our work and we may be pushing our luck.

Be safe – have a Happy New Year!

*Chris Stavroudis is a conservator in private practice.*

---

---

## 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. Paper-bound and printed on acid-free stock.

**Price, postpaid:**

\$8.85 (\$6.60 per copy for orders >10 copies)

---

---

### Loss Compensation Symposium Postprints

A compilation of the talks comprising the Loss Compensation panel from the 1993 meeting at the Marconi Conference Center, enhanced by a detailed introduction into the history of loss compensation theory written by Patricia Leavengood.

**Price, postpaid:**

\$12.50

---

---

### Back Issues of WAAC Newsletter

Back numbers of the *Newsletter* are available. Issues **before 1993 cost \$5 per copy**, issues **from 1993 on cost \$10 per copy**. A 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.

---

---

### Make your check payable to WAAC. Mail your order to:

Donna Williams

---

# Conductivity Probe Prototype: Measuring Soluble Salt Content on Ancient Ceramics

---

The presence of soluble salts on pottery is a concern for conservators as it often influences decisions regarding treatment, handling, and display of objects. The deleterious effects of soluble salts are well known and a source of concern for object stability. Identifying the damage caused by soluble salts is easily done visually. However, identifying the presence of soluble salts on objects that do not yet exhibit early signs of pitting or spalling can be more difficult.

Spot tests have proven useful in determining the presence and type of salts on surfaces. However, some of these tests are not quantitative, and the job of prioritizing treatments, especially in large collections, becomes a frustrating guessing game. Our goal in developing a conductivity probe was to create a portable, non-destructive, quantitative tool for comparing the soluble salt content on ceramics.

## Design

The idea for the probe and the first model were developed by Werner Zimmt and Nancy Odegaard at the Arizona State Museum Conservation Lab. This prototype is shown in Figure 1 and was designed as an attachment to a LabLine Lectro Mho Meter. The original apparatus included a wax probe holding two platinum (Pt) wires. A rigid plastic cylinder and a foam gasket were held against a pot's surface, and filled with deionized (DI) water. The wax probe was placed in the water to measure the water conductivity – a measurement of the salt dissolved from the pot's surface.

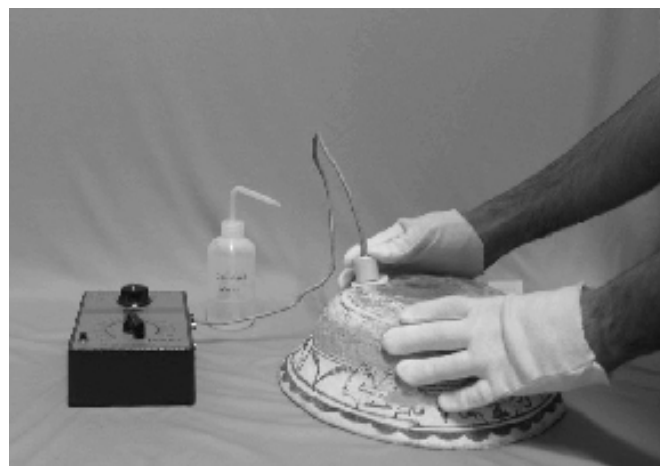


Figure 1. Mock up of first conductivity probe prototype.

This design confirmed the general principles of the technique but proved to be inherently problematic. It was difficult simultaneously to hold the probe in contact with the pot's surface, read/adjust the meter, and prevent water from leaking onto the vessel. The water volume could not be held constant, and it was difficult to achieve reliable conductivity readings. For these reasons, Nancy and Werner encouraged us to refine the probe to be more user-friendly and accurate.

The new design for the conductivity probe is a single apparatus that contains a water chamber with fixed volume, Pt wires, a flexible silicone gasket to make contact with pot surfaces, and a syringe to remove water from the chamber to minimize the amount of water left on the vessel. In addition, this new probe has been designed to work with the Oaklon EC Testr conductivity meter, which can be worn in an armband or placed in a wall-mount for increased maneuverability.

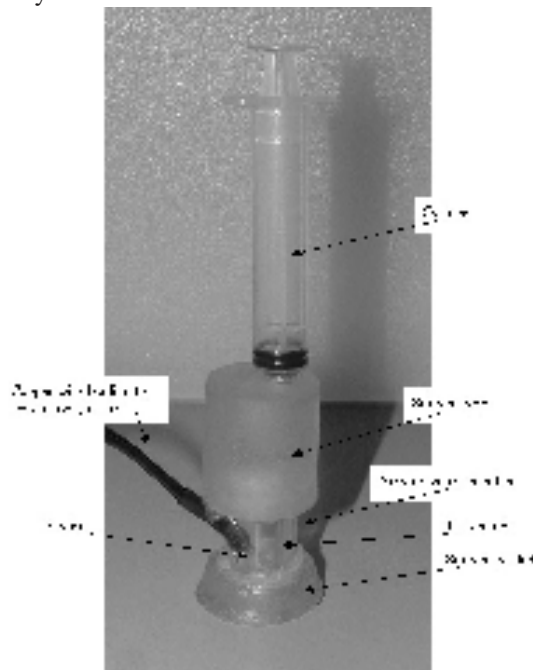


Figure 2. Refined conductivity probe design.

To fill the water chamber, one must first draw DI water into the syringe. This water is then injected into the chamber through a Teflon tube while the probe is held against a ceramic surface. The silicone gasket minimizes leakage of water onto the ceramic surface. As soluble salts are dissolved the conductivity of the water in the chamber increases and is measured with the Pt wires. After the conductivity value has stabilized, the water is drawn out of the chamber with the syringe. It is necessary to rinse the syringe and chamber with DI water between each measurement, but this can be done quickly by plunging DI water in the syringe from a beaker until the reading on the conductivity meter returns to 0 $\mu$ S.

## Calibration

To determine the reliability of this new probe design, a variety of salt solutions at different concentrations and ion species were measured. These measurements were taken using the Oaklon EC Testr conductivity meter alone as well as with the probe attachment. For the probe measurements, the salt solutions were drawn into the syringe and then deposited into the chamber as it was held in contact with a glass dish. Between each measurement, the probe was rinsed with DI water until a zero reading was obtained.

The conductivity measurements were plotted against ion concentration to create a calibration curve. Because we are interested in the ions in solution, we decided to measure concentration in equivalents per liter (essentially the molarity of an ion of interest rather than the molarity of the compound as a whole). In Figure 3, you can see concentration vs. conductivity for both the high conductivity meter (0-19.90mS) and the low conductivity meter (0-1990 $\mu$ S).

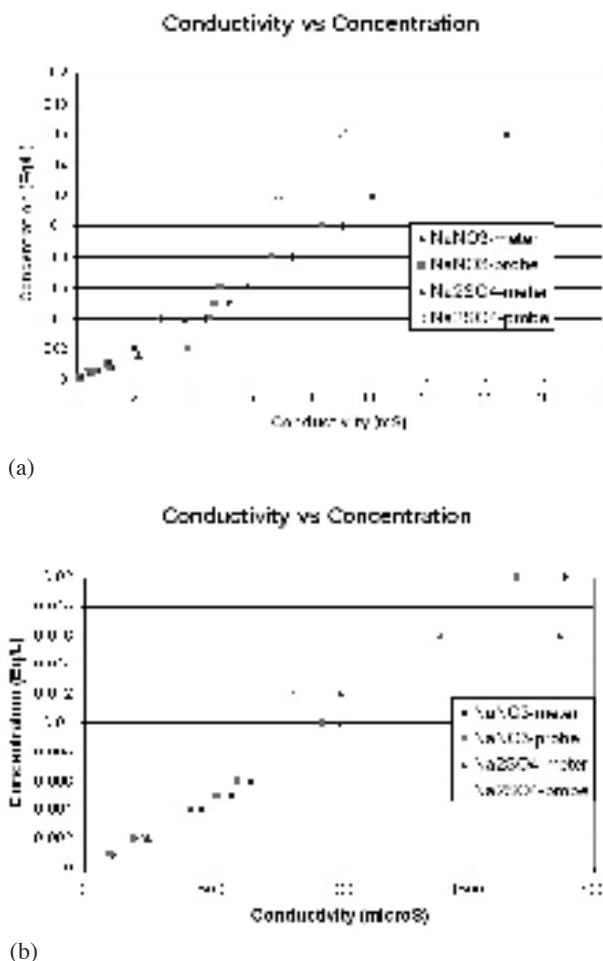


Figure 3. Conductivity vs. salt concentration for the probe and conductivity meter alone (a) using the high conductivity meter and (b) using the low conductivity meter.

As shown by these graphs, there is good agreement between the measurements made on the same solutions with the probe and with the meters alone. There is also good agreement between different salt types at the same concentration. This allows us to establish a general curve relating measured conductivity to the concentration of salt in solution. Figure 4 shows the general calibration curves established by averaging the trendlines from the different salt solutions. Using these, a conductivity measurement will provide a good idea of ion concentration.

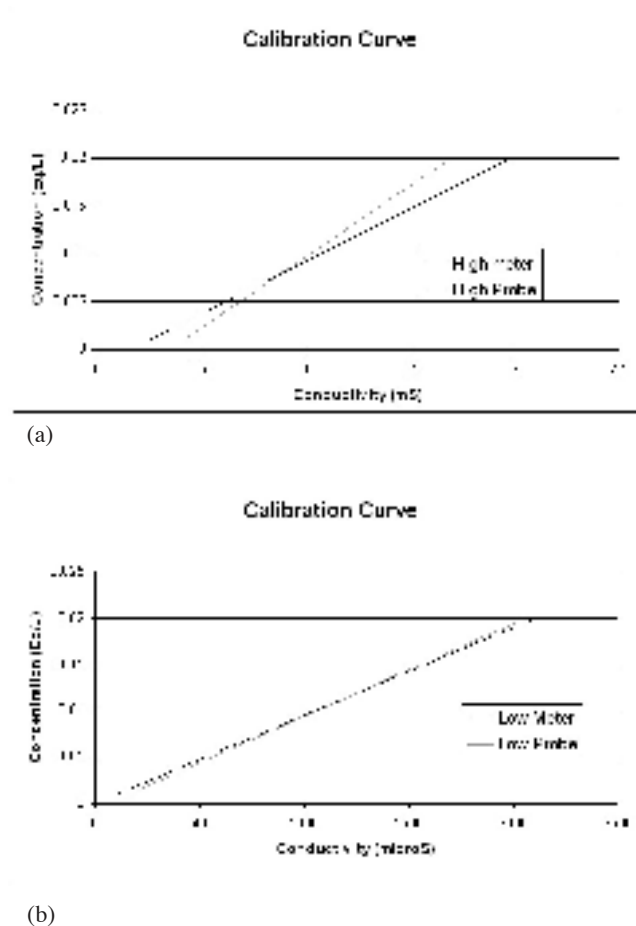


Figure 4. Calibration curves for (a) the high conductivity meter, and (b) the low conductivity meter.

### Testing

After using the probe with prepared salt solutions of known concentration, the next step was to try it on modern potsherds that were spiked with various salt compounds and compare the readings to those from the water used to desalinate the sherds. Each sherd or vessel was weighed, and the surface salt content was tested with the probe (Figure 5). These test pieces were then submerged in known amounts of water to begin desalination. The conductivity of the water was measured periodically until values stabilized after approximately 3 days. The measurements from the water were then compared to the initial probe readings.

It is important to note that the conductivity measurements provide information about the concentration of ions in solution; however, it was necessary to use different volumes of water for the desalination process due to the larger size of some vessels. The result was that the concentrations in the wash water did not necessarily reflect the concentration of salt on a potsherd; that is to say, even a very salty object can yield a low concentration of ions when placed in a very



Figure 5. Using the probe on a potsherd surface.

large volume of water. For these reasons we needed to calculate the *number* of ions in solution and not rely on the *concentration* of ions in solution. The number of ions in solution would necessarily be larger in the wash water than in the 4mL water chamber of the probe because the entire potsherd surface was exposed to water during the desalination, but only a small area of the sherd surface was exposed during the probe reading. Regardless of this difference, these numbers should be proportional if the probe is providing an accurate view of the soluble salt content on the sherds.

The number of ions in solution was calculated by using the equations for the trendlines shown in Figure 4 relating conductivity to concentration. The concentration was then multiplied by the volume of water (4mL for the probe readings, and the volume of the wash water for the desalination readings). The result is the number of moles of ions in solution, and these numbers are shown in Figure 6.

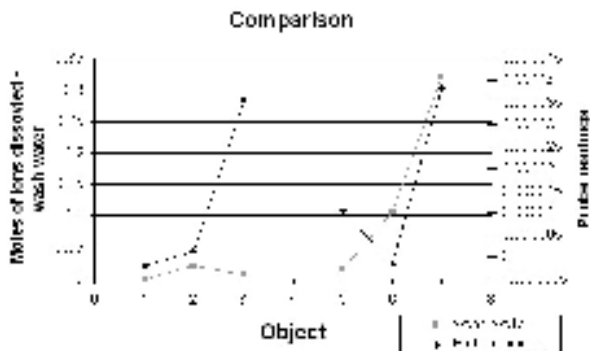


Figure 6. Comparison of conductivity probe readings (on the right) to desalination readings (on the left).

As expected, these ion values are generally proportional. The exceptions to this proportionality are with objects 3 and 6. Object number 6 contained sulfate salts, and we believe that the difference in measurements is largely due to these sulfate compounds. Sulfates tend to have a much lower solubility in water than other salts and the probe was only left on the surface of the pot for about 30 seconds. When submerged in water for desalination, the sulfate salts had much more time to dissolve. This illustrates one very real limitation of the probe: it is difficult to get an accurate reading when dealing with low solubility salts. The disparity for object 3 could be from a non-uniform salt concentration on the surface. We may have tested a salty region on a sherd that overall contained very little salt. Therefore, we must keep in mind that this is only a spot test, and to get accurate results, more than one spot should be tested.

### Conclusions

The limitations of this probe are (1) that it samples a limited area, and therefore can provide non-representative results, and (2) that it is designed to detect only highly soluble salts. Further tests will be conducted to verify the reliability of the probe measurements. In addition, the potential formation of tidelines is a concern. We have not noticed any tidelines, possibly because all tested objects were subsequently submerged for complete desalination; however there is potential for water sensitive components to become mobile and form tidelines.

Despite these limitations and requirements for future work, the probe has proven to be highly mobile. This allows its use for fieldwork and also in storage areas without moving objects great distances. In general we believe that this is a promising new tool that will aid the conservator or archaeologist in soluble salt detection and measurement.

---

# Removal of Arsenic and Mercury Contamination from Materials using a Natural, Environmentally Benign Chemical *by Peggí Cross*

---

## Forward

I first became aware of the issue pertaining to the use of pesticides on artifacts in a colloquium presentation at the University of Arizona given by Dr. Timberly Roane of the University of Colorado. I had been independently studying the binding of natural chemicals to arsenic at the time and had found a body of literature suggesting that alpha-lipoic acid would be a very good candidate. My field of study is Materials Science and Engineering with a minor in Environmental Engineering. My focus on the use of natural chemicals that are essential to human existence or chemicals that are manufactured in the human body comes from my belief that in order to maintain a planet that is habitable, we must maintain an equilibrium with our environment. By at least starting with chemicals that have known impacts on human life, we have a chance of not creating unpredictable and devastating effects such as those invoked by the creation of chlorofluorocarbons.

As a returning student with several years of experience in the semiconductor industry, I was also at a point in my life where I was interested in finding a project that would contribute to humanity in a more meaningful way than a project that was just designed to create faster microprocessors, as is the norm in my field. I had just lost a young brother-in-law to cancer from an unknown cause and was most interested in arsenic as it is a carcinogen. I was quickly introduced to Dr. Nancy Odegaard, the leading expert on pesticide use at the Arizona State Museum. Dr. Odegaard embraced my ideas and made time in her busy schedule to help me write my first grant proposal to the National Center for Preservation Training and Technology. And that is how the project was born.

## $\alpha$ -Lipoic acid and its reaction to arsenic and mercury

$\alpha$ -Lipoic acid is a natural, environmentally benign chemical that is integral to all plants and mammals and is patented as an agent for the cure of many diseases. It has also been demonstrated that  $\alpha$ -lipoic acid acts in-vivo for the detoxification of both arsenic and mercury in biochemical studies dating back to the late 1950s (Reiss et al, 1957; Grunert, 1960; and Wagner, 1956). Figure 1 illustrates the structure of  $\alpha$ -lipoic acid and the reduced form, dihydrolipoic acid.

Mercury binds to  $\alpha$ -lipoic acid or dihydrolipoic acid at the sulfur sites (Brown, 1968), and it has been demonstrated that arsenic binds to dihydrolipoic acid (Spuches et al, 2005). Literature could not be found that indicated whether or not  $\alpha$ -lipoic acid must be reduced in order to bind to arsenic so this became the focus of one of the first experiments.

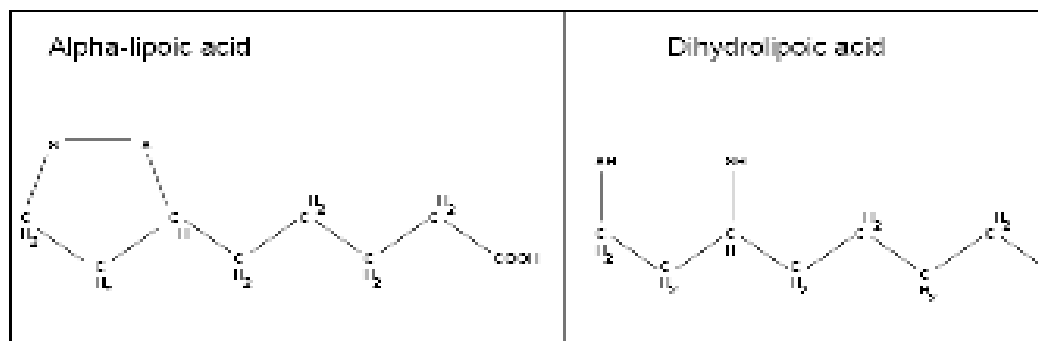
## Reduction of $\alpha$ -lipoic acid

Another attribute of the  $\alpha$ -lipoic acid is that it can be reduced using the ultraviolet light from sunlight or simple laboratory lamps which conservators are familiar with. Figure 2 shows a typical set-up of solutions in borosilicate test tubes with neoprene stoppers ready for photolytic reduction using an 8 watt UVP UV lamp with a 302 nm ( $604 \mu\text{W}/\text{cm}^2$ ) source. A series of many experiments were run to optimize the solubility, concentration, pH, and photolytic reduction rate using various reagents such as organic solvents, acids, and bases. The reduction of  $\alpha$ -lipoic acid to form dihydrolipoic acid (DHLA) was monitored using a UV spectrometer by the disappearance of the 330 nm absorbance peak (Matsugo et al, 1996).

Figure 2. Photograph of the UV lamp and stand with test tubes prepared for a typical exposure run.



Figure 1. The structures of  $\alpha$ -lipoic acid and dihydrolipoic acid redrawn from Packer et al (1995).



## Removal of Arsenic and Mercury Contamination, continued

Once a window was determined for preparation of the  $\alpha$ -lipoic acid solutions with a reduction rate that would allow the solutions to be used the same day, testing began on the reaction with arsenic in de-ionized water. The formation of the As-S bond was monitored via the 270 nm absorbance increase with UV spectroscopy (Spuches et al, 2005). As indicated by the graph in Figure 3, the formation of the As-S bond was evident only after alpha-lipoic acid underwent photo-reduction. In addition, reduced lipoic acid does not react with As(V). The arsenic used on museum artifacts was predominately in the form of arsenous acid or sodium arsenite (As(III)) so that will not impact the efficacy of the treatments for this application.

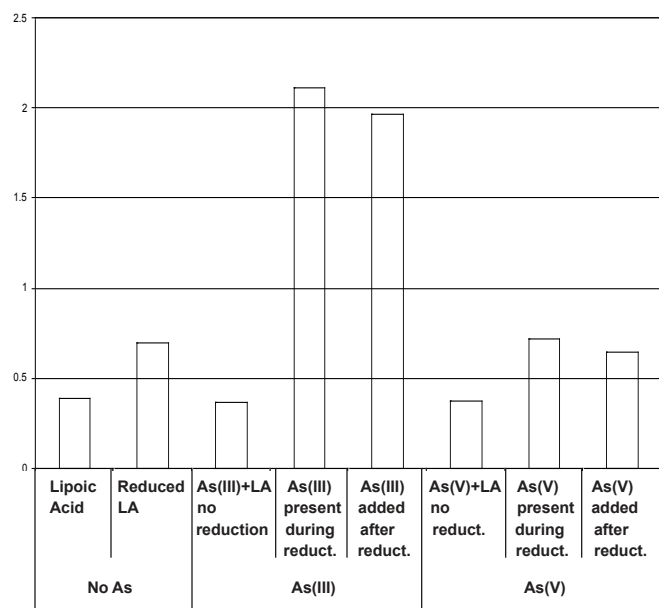


Figure 3. As-S Formation from As(III) and As(V) with lipoic acid before and after reduction and with the arsenic present during photochemical reduction of lipoic acid or added afterwards (180 min exposure to 302nm UV Source).

### Contamination of materials

Solutions of sodium arsenite or mercuric chloride were dispensed onto 550 mm diameter filter paper (Whatman No.1), wool or cotton fabric test pieces, or feathers (free range Quail) and then allowed to dry prior to measurement of the levels of contamination, using a Niton handheld X-ray Fluorescence instrument. Feather pieces were approximately 3/4 inch square and were measured for contamination prior to testing to insure that there were no detectable levels of arsenic or mercury. Even dispersions were obtained using a pumped spray bottle.

### Process sequence and techniques

The process sequence found to be most effective was a three step process including: 1) pre-wetting the material to be

decontaminated, 2) treating the material with the reduced lipoic acid solution and 3) rinsing the material by placing it at an angle and rinsing in a serpentine pattern from top to bottom with a wash squeeze bottle. Various pre-wetting and rinse solutions were tested in order to enhance wettability and penetration into the dense fibers but surfactants were avoided in order to avoid the need for vigorous rinsing in order to remove them.

The methodology used to optimize the treatment solution and process sequence included a series of full factorial experiments analyzed using an Analysis of Variance (ANOVA). For instance Figure 4 shows the average arsenic levels measured using XRF after treatment of filter paper with an average initial arsenic level of 307  $\mu\text{g}/\text{cm}^2$ . The variables tested were: 1) using carbonated water vs. de-ionized water as the pre-wetting agent, 2) using reduced lipoic acid vs. no treatment solution and 3) using carbonated water vs. deionized water as the rinse reagent. The lipoic acid clean step was shown to have a significant effect ( $p=0.0005$ ) on the reduction of the arsenic contamination.

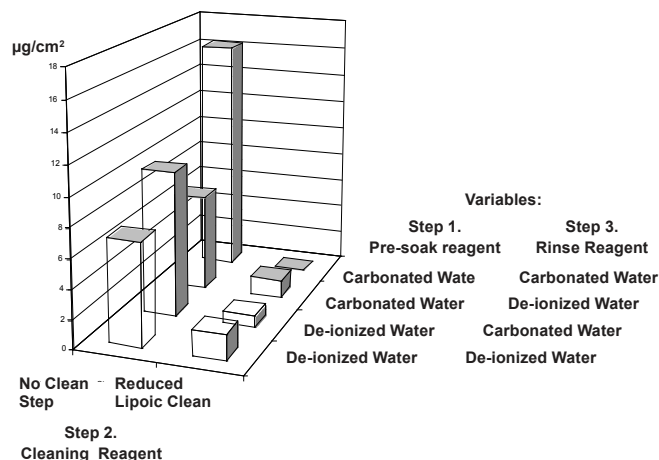


Figure 4. Average residual Arsenic(III) ( $\mu\text{g}/\text{cm}^2$ ) on filter paper after different cleaning sequences. (Original contamination : 307  $\mu\text{g}/\text{cm}^2$  Arsenic as  $\text{NaAsO}_2$ .)

Tests of this nature continued with increasing levels of arsenic and mercury until a process was developed for removing approximately 1500  $\mu\text{g}/\text{cm}^2$  of arsenic or mercury to very low levels. In general, lower levels of residues could be achieved on non-sulfur containing materials, and mercury could not be removed from the sulfur containing materials such as wool and feathers using the treatment developed.

### On-going work

Work is ongoing to look at the effect of the arsenic and mercury salts on the materials before and after contamination and treatment using ATR-FTIR. There are very promising results that show that the increased crystallinity of cellulose



---

## Removal of Arsenic and Mercury Contamination, continued

---

material due to sodium arsenite treatment can be reversed with the reduced lipoic acid treatment. This indicates that the solutions may be effective at treating cellulose-containing materials such as wood.

### Acknowledgements

I would like to acknowledge the entire staff at the Arizona State museum for making this project possible and in particular Dr. Nancy Odegaard and Dr. Werner Zimmt whose chemistry expertise was essential to the outcome of the project.

The work described in this paper was supported by a grant from the National Park Service and the National Center for Preservation Technology and Training. Its contents are solely the responsibility of the author and do not necessarily represent the official position or policies of the National Park Service or the National Center for Preservation Technology and Training.

### References

Brown, P., *The Investigation of Some Reactions of Alpha-Lipoic Acid*. Ph.D. Dissertation, Brown University, 1968.

Grunert, R., Effect of DL- $\alpha$ -Lipoic Acid on Heavy Metal Intoxication in Mice and Dogs. *Archives of Biochemistry and Biophysics* (1960) 86, 190-194.

Matsugo, S.; Han, D.; Tritschler, H.J.; and Packer, L.; Decomposition of  $\alpha$ -lipoic Acid Derivatives by Photoirradiation-formation of Dihydrolipoic Acid from  $\alpha$ -lipoic Acid. *Biochemistry and Molecular Biology International* (1996) 38(1) 51-59.

Packer, L.; Witt, E.H.; and Tritschler, H.J.; Alpha-Lipoic Acid as a Biological Antioxidant Free Radical. *Biology and Medicine* (1995) 19(2) 227-250.

Reed, L., Chemistry and Function of Lipoic Acid. *Comprehensive Biochem.* (1966) 14, 99-126.

Reiss, O.; and Hellerman, L.; Pyruvate; Utilization in Heart Sarcosomes Inhibition by an Arsenite Compound and Activation by Lipoic Acid. *Journal of Biological Chemistry* (1957) 231, 557-569.

Spuches, A.; Kruszyna, H.; Rich, A.; and Wilcox, D.; Thermodynamics of As (III)-Thiol Interaction: Arsenite Monomethylarsenite Complexes with Glutathione, Dihydrolipoic Acid and Other Thiol Ligands. *Inorganic Chemistry* (2005) 44(8) 2964-2972.

Wagner, A.F.; Walton, E.; Boxer, G.E.; Pruss, M.P.; Holly, F.W.; and Folkers, K.; Properties and Derivatives of  $\alpha$ -lipoic acid. *J. of the American Chemical Society*, 78, 5079-5081.

---

## Annual Meeting Presentations

---

*The 2006 WAAC Annual Meeting was held October 20 - 22 in Tucson, Arizona.*

*The papers from the meeting are listed below along with summaries prepared by the speakers.*

---

### Traveling in the American West

Sylvie Penichon

*In the American West* was a landmark in the career of New York fashion photographer Richard Avedon. Unveiled in 1985 at the Amon Carter Museum, the work was acclaimed and criticized with equal fervor. Twenty years later, *In the American West* is back on the road and continues to fascinate and disturb visitors. This presentation will focus on the aesthetic choices made by the artist for the printing, mounting, and display of the photographs and their impact on the long-term preservation of the work. Conservation issues with the traveling of the exhibition to multiple venues will also be discussed.

### Saving Grand Canyon River Running History: One Boat at a Time.

Brynn Bender

Modern adventurers have been traveling through the Grand Canyon on the Colorado River since 1869. The Grand Canyon National Park Museum collection contains 18 boats that have made historic journeys on this amazing river from 1909 to 1965. This presentation will include an overview of the National Park Service's project to preserve and exhibit these boats. Treatments have used multi-disciplinary techniques and an overall approach towards long term preservation.

### Conservation Methods Used for *Miracles and Mischief: Noh and Kyogen Theater*

Susan R. Schmalz

The Los Angeles County Museum of Art organized an exhibition of over 200 culturally significant objects borrowed from Japan for its exhibition, *Miracles and Mischief: Noh and Kyogen Theater*. Ranging from sumptuous silk robes to expressive wooden masks, these objects of high cultural, aesthetic, and monetary value were accompanied by staff from the Japanese Government's Agency for Cultural Affairs, the "Bunka-cho." To address the lenders' strict guidelines for installation and exhibition, LACMA's textile conservator and object conservator worked closely with the couriers to address environmental, mounting, and treatment needs. This paper will examine the steps taken to bring together Eastern and Western philosophies of aesthetic appearance and acceptable stability.

---

---

## Annual Meeting Presentations, continued

---

### **Preliminary In Situ Conservation of Late Pre-classic Maya Wall Paintings and Architectural Features in Las Pinturas San Bartolo, Guatemala**

Angelyn Bass Rivera, Leslie Rainer, and William Saturno

Following discovery of late pre-classic murals at San Bartolo in 2001, preliminary conservation of the wall paintings and architectural features has been carried out in conjunction with their excavation. In situ conservation treatments have focused on recording the physical condition of the murals and monitoring the microclimate as baseline documentation, stabilizing wall paintings and stucco relief features, reattaching mural fragments, and cleaning surface soiling to facilitate documentation and interpretation of the murals. Minimal intervention and a phased conservation approach have allowed excavation to proceed while preserving the structural and material integrity of the wall paintings and other architectural features for future study and presentation.

### **Re-tracing the Long Old Road in China: Conservation, Archaeology, and Museum Ethics at the Fogg Art Museum, 1921-1933**

Sanchita Balachandran

The preservation of cultural property is never a neutral activity. The question of who is to possess, care for, and interpret artifacts is highly politically charged, particularly when cultural property is acquired or removed under imperial or colonial rule. This talk examines how preservation was used as a justification for the removal of not only movable artifacts but also pieces of immovable archaeological sites, and was therefore an essential tool in building museum collections.

This study focuses on a collection of twelve wall painting fragments from the site of Dunhuang, China, which were removed by art historian Langdon Warner in 1924 for the Fogg Art Museum (now the Harvard University Art Museums). The removal process resulted in significant damage to some of the painting fragments as well as to the site, calling into question what is preserved—an intact ancient artifact or an ancient artifact

scarred by and embedded with its modern collection history. How do pedagogical institutions such as museums grapple with unsuccessful examples of preservation? Drawing from the Harvard collection as an example, this paper examines the contradictions of early preservation ethics in China, and considers the legacies of such policies for museums with these entangled artifacts as well as the sites from which they were originally removed.

### **Reading a Pueblo Pot: What We Can Learn from the Conservator's Visual Examination**

Landis Smith

Pueblo pottery presents the conservator with a range of technology and conditions which are the result of the potter's technology and materials, and the subsequent history of the pot both within and without the pueblo. Visual examination reveals an array of surface deposits, Native repairs, coatings, use wear, paste, slip, and paint which offer information about the pottery-making process, firing conditions, social conditions, cultural aesthetics, environment, use and differences between pueblos. At the same time, examination of pottery often sheds light on past museum practices, ethics, and particularly, attitudes towards preservation. Case studies will be used as points of discussion.

### **Anatomy of a Collection Move**

Jennifer Alcoset, David Dolim, Lisa Forman, Margaret Kipling, and Caroline Kunioka

Planning and preparing for a collections move presents one of the greatest challenges to museum professionals. The development of a collections move process is a complex problem, and many different approaches have been used. The move process created by Hudson Conservation Group for the Southwest Museum of the American Indian of the Autry National Center collection presents a useful case study of a well-designed collections move. Stations for registration, pest management, condition assessment, cleaning, rehousing, and storage were created to insure all aspects of each artifact were addressed within the overall context of the

whole collection. Objects were tracked throughout the process using a custom designed barcoding system. The talk will outline these procedures and their implementation.

### **Documentation Synthesis of the Watts Towers**

David Wessel, Katherine Untch, and James Cocks

Italian immigrant Simon Rodia created the Watts Towers between 1921-1955. Fully encompassing a tenth-acre triangular lot and reaching a height of almost 100 feet at the highest point, the site contains several individual features made of steel armature, wire mesh, and cement mortars. The surfaces of these sculptures are embedded with salvaged decorative pieces including glass bottles, glazed tile, pottery shards, rocks, and seashells. Surfaces, including the floor, are embossed with designs from iron gratings and Rodia's tools. The towers are designated a National Historic Landmark, one of four in the city of Los Angeles.

Several conservation and engineering experts have contributed to the ongoing preservation of the Watts Towers. In 2005 Architectural Resources Group was contracted by California State Parks to synthesize previous records including repair databases, condition and repair records, photographs, and engineering and material test reports into an accessible web-based three dimensional computer model. Data links at locations on the computer model can access records pertaining to a specific location. The model can be used to better assess condition changes over time. This paper will give an overview of previous documentation formats and demonstrate the web-based computer model.

### **The Community of Biofilms on Rock Surfaces: Conservation Implications**

Mary-Lou Florian

Biofilms are bacterial, fungal, algal, and lichen colonies which produce a film, slime- by which they attach themselves to surfaces. The community includes all these organisms. Each one is undertaking activities required for its life and at the same time influences the others, allowing

---

---

## Annual Meeting Presentations, continued

---

life together in harsh environments on rock surfaces. Each cell has its own film. It is the site of water and gas diffusion, enzymatic activities, chelation of minerals, antibiotic resistance, etc. The film has been overlooked in our conservation treatments. Films remaining on surfaces condition surfaces for rapid reinfestation. The film is a colloidal gel strongly adhered to the surface which shrinks and swells with moisture changes causing rock particle disaggregation.

### **Louisiana Mold in Southern California**

Beverly Perkins

As an objects conservator, I am not accustomed to confronting moldy collections. Six months after the hurricanes and flooding in New Orleans, Mary Striegel of NCPPT, Hilary Kaplan of NARA, and I went to Louisiana to teach three workshops sponsored by NCPPT, AIC, and NARA. The three of us also carried out on-site consultations for wet and moldy collections. During one of these site visits to a jazz musician's house, we recovered selected pieces of the musician's hand written music, journals, and personal effects. Four boxes of still wet paper and objects were sent to Southern California. A mini-massive treatment was carried out on the musical scores and journals, under the supervision of Hilary Kaplan and with the help of Janet Ruggles of BACC. Basic information on handling and eliminating a mini-massive amount of mold will be presented.

### **After the University of Hawaii Library Flood: FEMA and Treatment of Maps and Aerial Photos**

Lynn Davis

Powerful water surged through the ground floor of the University of Hawaii at Manoa Library in October 2004, leaving behind some fish, frogs, and water and mud damaged collections. In February 2005 the university was declared a disaster by President Bush, allowing for FEMA funding. FEMA pre-Katrina and Rita, seemed to have little or no experience with library collections including maps and aerial photographs. A local architect and a paper conservator from the U.S. were assigned to work with the library on recovery issues and costs. This

talk will explore the delights and challenges of negotiating with FEMA and treatment of the library's collections.

### **The Use of Antibodies for the Identification of Proteins in Artists' Materials**

Arlen Heginbotham, Victoria Millay, and Michael Quick

Antibody-based immunological approaches to identifying protein-based materials offer several advantages over the traditional methods used for analyzing works of art. These techniques are able to distinguish with ease between different protein types (i.e. collagen vs. albumen vs. casein) and also to determine the biological source of the protein (i.e. bovine collagen vs. rabbit collagen vs. sheep collagen).

The technique of Enzyme-linked Immunosorbent Assay (ELISA) is highly sensitive (detection limits can be below one nanogram) and is relatively simple and cost-effective. In addition, immunofluorescence microscopy (IFM) offers the possibility of spatially resolving target proteins in embedded cross-sections. This paper presents a case study in which these complementary methods were successfully employed for the identification of egg albumin in the analysis of an important 17th-century French cabinet by Andre-Charles Boulle in the collection of the J. Paul Getty Museum. The authors suggest that ELISA and IFM have the potential to become routine analytical tools in conservation science laboratories.

### **The Southwest Pottery Project: Surveys, Storage, Rehousing, and Treatment at the Arizona State Museum**

Chris White, Nancy Odegaard, Teresa Moreno, Marlien Pool, Margaret Kipling, and Julie Unruh

The Arizona State Museum conservation and SW Pottery storage facilities are undergoing a significant renovation and reorganization. The project includes a baseline condition survey that includes treatment and material analysis of adhesives, coatings, and historic residues. The Southwest pottery collection consists of approximately 20,000 whole vessels. The entire collection will be surveyed and

moved to climate controlled storage in a new purpose-built facility. The survey includes photographic documentation and selective sampling of old adhesive residues, surface coatings, and ethnographic repair materials. The data from the survey will allow further work and research to continue on the collection and provide a valuable reference for future conservators.

### **Assessing Mechanisms of Granite Decomposition: A Cemetery Case Study**

Caitlin O'Grady

Granite materials are used widely in archaeological and architectural contexts. Several different mechanisms of deterioration have been identified including hydrolysis, salts formation, and biodeterioration. Hard water (resulting in hydrolysis and salts formation) and its effects on granite have not been adequately addressed, as indicated by rapid deterioration of granite grave markers from cemeteries in the southwestern United States. Samples from markers and irrigation water used in cemetery maintenance are analyzed to characterize chemical decomposition and determine a mechanism of deterioration. Recommendations for irrigation practices and possible treatment options for already damaged grave markers are made.

### **Hand-Held Conductivity Probe Prototype: Measuring Soluble Salt Content on Ancient Ceramics**

Lesley D. Frame, Iva Segalman, and Chris White

This hand-held conductivity probe enables conservators and other researchers to estimate the soluble salt content in ancient ceramics without immersion in water. While the complete immersion of ceramics in deionized water provides accurate detection and measurements of soluble salt content, this method can be time consuming and potentially destructive. The aim of this probe's design is to maintain the integrity of the artifact while obtaining localized surface measurements of soluble salt content. In addition, the device is highly mobile, facilitating use in both the lab and the field. The probe is still in the early stages of development. Calibration curves relating conductivity

---

---

## Annual Meeting Presentations, continued

---

in mS to ppm salt content and comparisons to conventional methods of measuring salinity have guided its development. Eventually, this hand-held probe will enable conservators more quickly to survey collections and determine strategies for preservation environments that will inhibit efflorescence as well as guide the protocols for conservation treatment.

### **The Removal of Arsenic and Mercury from Materials Used for Artifacts**

Peggi S. Cross

Historic treatments to preserve natural science specimens, ethnographic artifacts, and other materials often included arsenic and mercury salts. The need for a method to decontaminate artifacts and museum surfaces without causing degradation to the surfaces or exposure to personnel is a critical conservation concern. Today, there is an environmental concern for the health of the museum workers, visitors, and researchers who work with these collections. In addition, American Tribes who receive objects through repatriation may face serious health hazards if the objects are placed back into cultural use. Aqueous solutions that include the use of reduced alpha-lipoic acid, a natural chelator, have been developed, and the efficacy of these solutions to remove arsenic and mercury from porous materials including standard filter paper, cotton, wool, and feathers has been measured using X-ray fluorescence (XRF).

### **Supercritical Carbon Dioxide (scCO<sub>2</sub>) Extraction of Pesticides from Simulated Museum Artifacts**

Teresa K. Moreno, Werner Zimmt, Nancy Odegaard, Rachael A. Turner, Bo Xie, Anthony J. Muscat, and Mark R. Riley

In the past, cultural artifacts in museums were often treated with a range of poisons and pesticides to prevent or retard deterioration. Unfortunately, accurate records of the type, dose, and timing of administration of these pesticides were frequently not maintained. Many persistent pesticides, including non-volatile metals, may remain on artifacts decades after administration. There are limited methods to determine if such materials remain and few methods for removal

without damaging the fragile and precious materials. This study presents an investigation of the use of supercritical carbon dioxide (scCO<sub>2</sub>) for the removal of organic pesticide residues, such as DOT or diazinon from simulated museum artifacts and pesticide residue detection using a lung cell culture technique.

### **Stanton MacDonald Wright: Murals for the Santa Monica Public Library**

Susanne Friend and Duane Chartier

This paper discusses the recovery, conservation, and reinstallation of a mural cycle originally designed for the Santa Monica Public Library. The mural cycle suffered unnecessary damages as a result of the destruction of its original venue. As a WPA sponsored art work it was then brought to Washington, DC where it languished in storage for forty years. The construction of a new library in 2005 enabled the city of Santa Monica to take out a long-term "loan" of the paintings. The mural was then conserved and reinstalled in the new building. The reinstallation in a new library in close proximity to the old demolished library raises important questions about the management of WPA era art as well as other public art.

### **Wax Sculpting Tools**

Beverly Perkins

Electric wax sculpting tools are efficient and easy to use. Wax sculptors use electric tools with an assortment of tips to make reliefs, jewelry, models, and sculpture. The needs of a sculptor are similar to the needs of a conservator working on an object made of wax; bonding two pieces of wax together and filling, or building up, areas to plump up sculptural forms. Electric wax sculpting tools can cost hundreds of dollars. This presentation will discuss various tools including one that works on batteries and sells for less than \$20, and one that can be easily made. This wax tool can also be useful for paintings conservators who make wax fills.

Sources for Wax Sculpting Tools:  
Rio Grande [www.riogrande.com](http://www.riogrande.com)  
FDJ Tool [www.fdjtool.com](http://www.fdjtool.com)  
Shor International Corporation [www.shorinternational.com](http://www.shorinternational.com)

### **Solvent Gels: Insights into Carbopol Gel Formulation with the Modular Cleaning Program**

Chris Stavroudis

Ongoing development of the Modular Cleaning Program (MCP, a FileMaker Pro database that formulates cleaning systems for conservators) has catalyzed an effort to better understand the formation of Carbopol-based solvent gels. Working with only empirical observation of gel formation and careful measurement of the amount of water that is required to make a successful solvent gel, a theory of solvent gel formation has been incorporated into the MCP. Using this theoretical model, the MCP can suggest the correct amount of water to be added to complex mixtures of solvent, Carbopol, and up to two amines.

This theory of Carbopol solvent gel formation will be explained. Once conservators can understand how to predict the amount of water necessary to make a solvent gel, we can focus of fine-tuning the solvent combinations in solvent gels and the selection of neutralizing amines to better control their action in cleaning. How a number of solvent gels can be modularized to fit into a mix-and-match system to be implemented in the MCP will also be discussed.

### **Towards an Indelible Prehistory: Laser Scanning and Southwestern Archaeology**

Wm. Randy Haas, Jr.

Archaeologists have relatively recently recognized potential applications of 3D laser scanning in archaeology. Over the past decade, Western Mapping Company has adapted and developed methods for capturing high-accuracy, high-resolution, digital 3D models of prehistoric material culture, including art, architecture, and artifacts. In this presentation, we provide a brief overview of laser scanning technology, introduce some socio-political impetuses for digitally modeling prehistoric remains, and offer several case studies to demonstrate the efficacy of using 3D laser scanning to solve analytical and management problems in the archaeology of the American Southwest.

---

# Museum Exhibit Lighting Workshop

## April 16 - 17 Richmond, VA.

---

---

## Membership

---

Museum illumination is a complex subject involving aspects of materials damage, assessment and risk management, the physics of light, color appearance phenomenon, visibility, aesthetics, and communication. The best exhibition displays balance and maximize these components resulting in beauty and preservation, the worst invite derision and destruction. Preventive conservation specialists are usually asked to weigh in on risks of light damage and to help identify sensitive colorants, surfaces, and objects, but they almost never contribute to the aesthetics of display, not to mention a near-zero contribution to the conversation about display “communication” or visibility. Yet, it is the “whole package” that creates the experience for the museum visitor.

In 1997, Toby Raphael of the National Parks Service, designed a workshop entitled “Museum Exhibit Lighting” coincident with the AIC annual meeting in San Diego. That workshop focused heavily on the design and technology of lighting at a time when illumination sources were pretty much limited to continuous spectral blackbody sources, i.e. incandescent lamps, with little prospect for change in the near future. Likewise, materials damage assessment was mainly identifying probable sensitive materials and light exposure models, rather simple manipulations of light intensity and exhibition durations.

In the ten years since the San Diego workshop, trends just beginning to be felt in museums in energy conservation have solidified, discontinuous spectrally-modified light sources talked about, and the energy-sparing, light emitting diode developed. True, trustworthy techniques, such as track lighting and fiber-optical illumination, still carry the brunt of the work, but they are being supplemented with, and face potential replacement by, an ever-increasing array of low voltage options and clever designs. From a technology standpoint, the era is transitional.

Similarly, how we approach assessing light damage and identifying light sensitive objects has evolved, with better and more sophisticated tools and modes of thinking. Risk analysis approaches to light exposure are now just as mature as risk analysis in any other field, and in fact can be viewed as leading the materials science for the first time. Meanwhile, the materials science side of light damage assessment has now seen nearly ten years of application in virtually non-destructive fade-susceptibility testing. In the not-too-distant future, these two disciplines will be more efficiently co-ordinated, making each even more generalizable and useful.

In the days when you could have any 75 microwatts of UV packaged into a 50 lux artificial light source, as long as it was powered by tungsten - aesthetics and visibility were “catch as catch can.” If you had a good lighting designer it was usually “catch.” If not, conservation issues trumped aesthetics, and if older visitors had difficulty seeing some objects, well that’s the problem with getting old. Conservation concerns still trump aesthetics and visibility, but now in a kinder and gentler way. Once a sacrosanct topic like the absolute need for continuous spectral light sources yielded to discussions of discontinuous spectra for specific objects and types of collections, then other areas became vulnerable for discussion, which may some day yield visibility benefits to the elderly.

At the April 2007 AIC meeting in Richmond, Virginia, a two-day workshop on museum lighting will highlight this evolving illumination landscape with an impressive list of speakers. Some speakers and workshop leaders will be very familiar to most conservators, such as Stefan Michaski, David Saunders, Paul Whitmore, William Lull, Paul Himmelstein, and Richard Kerschner. Others will be less familiar, yet represent active centers of conservation research, development, and museum application such as Carl Dirk, Christopher Maines, Christopher “Kit” Cuttle, Steve Hefferan, and myself.

The goal of the program is to open up new areas of thought for participants and demonstrate how the role conservation plays in museum display can be broadened. For further information please see the website of the American Institute for Conservation, click on the annual meetings, and go to workshops.

*James Druzik*

---

---

**Membership, continued**

---

---

---

# Jobs

---

## Asian Art Museum

HEAD OF CONSERVATION  
SEARCH REOPENED

The museum began recruiting for a Head of Conservation in 2006 but placed the recruitment on temporary hold while pursuing a Mellon Grant to fund conservation efforts. This \$1.5M grant has now been received, allowing for a conservation endowment of \$2.5M.

The Asian Art Museum is seeking an experienced conservator with strong managerial, leadership, and communication skills to supervise and coordinate the staff and operations of the Conservation Laboratory for this world-renowned collection.

Reporting to the Director of Museum Services, the Head of Conservation directs and manages the staff and activities of the Conservation department. As the museum's chief spokesperson on conservation issues, he/she must possess the ability to anticipate the future needs of the institution and to design effective systems for meeting the museum's obligations with regard to the care and preservation of the collection.

The Head of Conservation supervises and performs highly skilled conservation work including examination, research, treatment, documentation, and preparation for exhibition of Asian art objects; determines standards and procedures for the care of Asian artworks within the museum, in exhibitions, and on loan; devises restoration and preservation methods and techniques; consults with curators, scientists, and external conservators; liaises with outside specialists such as painting mounters and framers; and provides information on conservation matters to museum staff, colleagues, and the public.

The ideal candidate will have a significant record of professional accomplishments that may also include publishing and research. He/she will bring energy, vision, and resourcefulness to this critical position.

For the full job listing and/or to apply online, visit our website: [www.asianart.org](http://www.asianart.org). EOE.

## U. of California, Berkeley

LIBRARY CONSERVATOR  
PRESERVATION DEPARTMENT

Join the Preservation Department's team charged with conserving paper-based archives, circulating, and special collections at the University of California, Berkeley.

### Responsibilities:

Provide disaster response and salvage of collections; analyze needs and sort collection materials for conservation treatment; perform simple through complex treatments on paper, books, and photographs exercising a high degree of judgment in applying established conservation principles and procedures; organize and implement conservation projects, including production planning, supplies, and workflow to meet project deadlines; communicate with staff and clients orally and in writing; document treatment and processing procedures; teach other staff treatment skills and procedures; use and maintain specialized conservation equipment (e.g., suction table, board shears, guillotine, ultrasonic encapsulator, freeze dryer, fume extractor, mold abatement equipment); compile departmental records and statistics for conservation services; monitor supply and equipment needs, investigate options to meet needs, and resolve technical problems.

### Requirements & Qualifications:

Training from a recognized library and archives preservation/conservation graduate program, or equivalent. Book and paper repair and conservation skills for treatment of archives, circulating, and special collections' materials; working knowledge of library and archives conservation principles; ability to work effectively as a member of a team; ability to work under general supervision with a high degree of day-to-day independence; writing skills to document procedures; basic competence with email and Microsoft Office applications.

Preferred Qualifications: Three or more years experience as a professional library/archives conservator; broad range of experience working in conservation in a research library/archives; experience with photographic conservation; knowledge of conservation chemistry.

Salary: Commensurate with qualifications and experience. The hiring salary range is \$35,964 to \$45,084. The full salary range is \$35,964 to \$58,776

For further information or to apply, go to: [www.hrweb.berkeley.edu](http://www.hrweb.berkeley.edu), under Careers @ Berkeley click on: Current Openings: Search and Apply for Jobs Now! : View Job Posting / Apply for Job, Search Job # 5453 or Keyword:library conservator

Gillian Boal  
Hans Rausing Conservator  
Preservation Department  
9 Doe Library  
University of California  
Berkeley, CA 94720  
510/643-7932  
FAX 510/642-4664  
email: [gboal@library.berkeley.edu](mailto:gboal@library.berkeley.edu)

---

## Getty Conservation Institute

ARCHITECTURAL PROJECT SPECIALIST

Develop and implement architectural conservation projects. Monitor daily operations and provide professional expertise utilizing knowledge of structural specifications, materials and other architectural elements to staff according to established guidelines, procedures and policies. Utilizing computer-assisted and traditional design tools, participate in the development of project plans, layouts and budgets. Develop and produce project-related communications, including technical scale drawings, reports, technical publications and presentations. Work closely with engineers, architectural staff and technicians, to assure project completion according to design and project objectives. Provide technical, professional and engineering support and expertise in architectural conservation through all stages of project development and implementation.

Reqs. Master of Science degree in historic preservation or architecture, plus 2 yrs post-baccalaureate exp in job offered or 2 yrs post-baccalaureate exp as conservation architect.

Resume to: The Conservation Institute, ATTN: GCI-1044; 1200 Getty Center Drive, Suite 700; Los Angeles, CA 90049 or fax to 310-440-6182.

---

---

## Articles You May Have Missed

---

**“Capt. Clark’s Signature Restored on Possibly 4 Occasions,”** *The Billings Gazette*, 09/03/2006

Beneath the signature of William Clark etched into the sandstone at Pompeys Pillar National Monument, an interpretive sign explains the significance of the artifact. It reads: “The ground on which Clark stood has weathered away but his signature has not. Because of this remaining physical evidence, the site is one of the few places along the entire Lewis and Clark Trail where you can be assured of standing in the footsteps of William Clark and other members of the Expedition.”

Capt. Clark’s signature is clear and easily legible now, but only because it has been restored and deepened - or possibly re-created - on at least two occasions, and possibly three or four.

In 2001 the Bureau of Land Management commissioned documentation of all the rock art, including Clark’s signature, on Pompeys Pillar. A lengthy section of the report details the documented history of the Clark signature and concludes: “Likely, Clark’s signature only survived through intervention.”

**“From Ruins to Ruined,”** *Los Angeles Times*, 09/07/2006

Myanmar’s regime is obliterating a cultural treasure as it `rebuilds’ ancient temples to bring in tourists. The ancient city of Bagan, which ranks with Cambodia’s Angkor temple complex as one of Asia’s most remarkable religious sites, is now in danger of becoming a temple theme park.

By some estimates, there were as many as 13,000 temples here during Bagan’s peak in the 13th century. Today, the Bagan cultural heritage zone has more than 2,200 temples, along with 2,000 unidentifiable mounds and ruins.

Despite the new construction, Bagan remains awe-inspiring. Some of the largest temples house giant statues of Buddha covered in gold leaf, and some still have original frescoes depicting the life of Buddha. The government decided that turning Bagan, also known as Pagan, into a tourist destination could bring much-needed foreign cash.

It set about making the archeological zone more appealing to visitors, particularly tourists from neighboring

countries such as China and Thailand that are not so critical of the military government. Few Western visitors come to Bagan because of calls by the opposition for a tourist boycott.

**“Pompidou Admits Human Error Caused Works of Art to Fall from Wall,”** *The Art Newspaper*, 09/07/2006

The Centre Pompidou in Paris has completed an internal investigation into the accidental destruction of two works of art which fell off the wall and were shattered during the summer exhibition *Los Angeles 1955-85*.

Peter Alexander’s untitled 1971 piece — a vertical bar of resin nearly eight feet long — was about to be installed last March when art handlers noticed that a small metal ring inserted into the hanging hole on the back was loose. A restorer was called in to glue the metal ring in place, but her instructions to let the glue set for 24 hours were “misinterpreted” by a Pompidou employee who hung the work that same day.

It fell from the wall that night. The Pompidou Center assumed total responsibility for the incident. The investigation did not determine what caused the other work to fall.

Craig Kauffman’s *Untitled Wall Relief* of 1967 is a convex bubble of acrylic-painted Plexiglas whose upper edge slotted into a wall-mounted moulding. After 130 days the piece fell and broke, and a guard and witnesses testified that no one had been near the work.

**“Scientific Investigations Unmask the Secrets of 16th-Century Venetian Painters’ Palettes,”** *Science & Technology*, 9/11/2006

Scientific analysis and historical research reveal that Venetian artists of this period were such skilled colorists because they borrowed materials and techniques lavishly from artisans in various trades.

Artists of the period built their reputations and demand for their oil paintings on the scaffolding of new pigments that were produced by borrowing materials from other trades — glassmaking, ceramics production, and textile dyeing — that were also booming. These materials included colorants that aren’t normally associated with oil painters, such as frit.

Lorenzo Lotto not only used transparent red lake pigments prepared from either madder or kermes, he also added finely ground sand to them to improve their working properties. Other notable colors were the orange tones made from two sulfides of arsenic — the yellow orpiment (As<sub>2</sub>S<sub>3</sub>) and the reddish orange realgar (As<sub>4</sub>S<sub>4</sub>). Ultramarine, which was imported from what is now Afghanistan, was another signature color.

**“Munch Paintings back on Display,”** *BBC News*, 09/13/2006

Two recovered Edvard Munch paintings will go on display in Oslo before they are repaired, say museum officials. Masterpieces *The Scream* and *Madonna* were stolen by two armed men in a daring daylight raid in 2004. Police recovered the paintings in August, and Norway’s Munch Museum said both works had suffered slight damage.

A photograph released by the museum on Tuesday shows a rip in the canvas of *Madonna. The Scream* - painted in 1893 and now one of the world’s most recognisable artworks - suffered less significant damage. Experts say they will be able to repair the paintings, but the restoration process will be painstaking and time-consuming.

They are undergoing technical investigation by police and curators, including efforts to lift fingerprints and DNA.

**“Discovery: The Oldest Writing In North America?”** *The New York Times*, 09/16/06

Writing that is 3000 years old in a language not known before now has been found on a stone in Mexico. Scholars are tantalized by a message in stone in a script unlike any other and a text they cannot read. They are excited by the prospect of finding more of this writing, and eventually deciphering it, to crack open a window on one of the most enigmatic ancient civilizations.

**“Bombs Shatter Lebanon’s Roman Legacy,”** *The Observer*, 9/17/2006

Monuments in two of the world’s most important heritage sites are in need of ‘urgent repair’ as a result of the recent conflict in Lebanon, a United Nations mission to the region has discovered.



A Roman tomb in Tyre and a medieval tower in Byblos have been significantly damaged by the war. The most extreme damage had been seen at the world heritage sites of Tyre and Byblos. At Tyre some of 'the finest examples of imperial Roman architecture in the world' had suffered direct damage, including the collapse of a fresco on a tomb only a few metres from the site's core.

At Byblos the effects of an oil spill - which occurred after the Israeli government bombed a depot in Jiyeh, 15 miles south of Beirut - are more obvious. A team of French experts were to be flown to Lebanon by the French government to instruct 15 to 20 Lebanese youths in the archaeological clean-up operation necessary at Byblos.

**"Wynn Accidentally Damages Picasso,"** *Las Vegas Review-Journal*, 09/17/2006

Pablo Picasso's "dream" painting has turned into a \$139 million nightmare for Steve Wynn. In an accident witnessed by a group that included Barbara Walters and screenwriters Nora Ephron and Nicholas Pileggi, Wynn accidentally poked a hole in Picasso's 74-year-old painting, *Le Reve*.

A day earlier, Wynn had finalized a record \$139 million deal for the painting of Picasso's mistress, Wynn told *The New Yorker* magazine. The accident occurred as a gesturing Wynn, who suffers from retinitis pigmentosa, an eye disease that affects peripheral vision, struck the painting with his right elbow, leaving a hole the size of a silver dollar in the left forearm of Marie-Theresa Walter, Picasso's 21-year-old mistress. Wynn plans to restore *Le Reve* and keep it.

**"Australian Petroglyphs Threatened by New Gas Project,"** *CBC*, 09/18/06

The National Trust of Australia is calling for urgent measures to protect the largest collection of ancient rock art in the world, located in the rugged Dampier Archipelago in northwest Australia. The calls took on new urgency Monday, after the state government of Western Australia approved plans to build a gas-processing facility on the Burrup Peninsula.

The National Trust, an independent agency charged with protecting heritage sites, wants a heritage listing for the region and a moratorium on indus-

trial development. There are about one million rock carvings on the Dampier Archipelago, a chain of islands off a remote part of Australia. The carvings are 6,000 to 30,000 years old and chronicle the cultural heritage of ancient Aboriginal societies.

**"Casa Gorordo of Cebu, Heritage Icon,"** *Philippine Daily Inquirer*, 09/24/2006

Casa Gorordo in Cebu, Philippines, reopened recently after being closed for a year for extensive conservation work. To protect the structural system of the house, controls have been imposed on the number of visitors allowed to be inside the house at one time.

Casa Gorordo is one of three remaining Spanish colonial-era *balay na tisa* (so called in Cebuano because of its terra-cotta roof tiles) in the Parian district of Cebu City, where the city's first families once lived. Casa Gorordo is the highlight of the Parian today. The low two-story structure is a typical late 19th-century construction.

Capped by a steep tile-covered roof ending in slightly upturned eaves recalling Chinese architecture (and the Chinese ancestry of most Parian residents), blocks of coral mined from the sea enclose its ground floor beneath an upper floor of the finest hardwood once available from the forests. Casa Gorordo serves as the focus for much of the conservation activity in Cebu.

**"Art Smuggler Offers Italy Mystery Masterpiece 'X' to End Trial,"** *Bloomberg*, 09/25/06

A convicted antiquities smuggler has offered to return a previously unknown ancient masterpiece known as "Object X" to Italy in exchange for reducing the jail time and fines he faces for supplying loot to U.S. museums.

A famous artist from the ancient world whose work compares to that of Michelangelo or Leonardo da Vinci created Object X, says the convicted art dealer, Giacomo Medici, who is free while awaiting appeal. The object, which may be a statue, vase, or something else -- he's not saying -- is worth millions, he says.

"It's something they can only dream about," Medici, 68, says of the Italian officials with whom he's negoti-

ating to cut his 10-year prison sentence and 10-million euro (\$12.8 million) fine. "And only I can bring it to them."

Medici's case is part of a broader prosecution that includes Marion True, the former antiquities curator at the J. Paul Getty Museum in Los Angeles, who is on trial in Rome for conspiracy and receiving smuggled art. She denies the charges.

**"A Knife in Our Back',"** *Art News*, October 2006

More details are emerging about the final years of Curator Larisa Zavadskaya, specialist in enamels at the Hermitage Museum. The middle-aged heavy-set diabetic was by all appearances a devoted custodian of art for 30 years and the quiet keeper of thousands of artifacts in the museum's Russian culture department.

She became notorious after her death last year for her involvement in the ultimate inside job: the theft of 221 treasures from the collection in her care. Zavadskaya apparently started stealing to pay for insulin, but this was only the beginning of an odyssey that would involve her son, a Hermitage courier; and her husband, Nikolai Zavadsky, a university lecturer; and at least one mysterious figure said to be the Svengali of the enterprise.

Her death ended it. Her heart stopped and she collapsed at her desk when an inventory of her collection began. The fallout from the heist includes public outrage, long-winded tirades in the media deploring the deteriorating moral fabric of the country, and a museum community in turmoil.

If anything, the theft has increased interest in the museum, bringing record crowds in August, according to museum spokespeople.

**"Communist Relic,"** *Wall Street Journal*, 10/4/2006

When is a relic from a dark past a treasured historical artifact? In Poland, the question is coming to a head in a very public dispute over a rusting large supermarket. Surrounded by unremarkable glass towers, Supersam is a dowdy 34,400 square foot hulk left over from communist days.

This spring, the building's private owners hatched a plan to replace Supersam with a \$65 million shopping

center and high-rise office tower. What they didn't reckon with is the power of nostalgia and the Internet.

Supersam was built in the early 1960s and broke architectural ground for the place and time. Rejecting the then prevailing "anti-cosmopolitan" political/artistic ethos, Supersam was an unabashedly modern and unique aluminum-glass building with a steel roof. With Wal-Mart-like hypermarkets sprouting all over since communism's fall in 1989, Supersam became a local food store, nothing more.

Then the current landlord, before Easter, declared the building structurally unsound and a fire risk. A city inspector duly ordered it shut. Wrecking crews were on the way when a Web site devoted to art history (sztuka.net) swung into action, swearing to save "one of the most interesting and valuable architectural objects in Warsaw."

The site's online petition garnered 2,245 signatures from architects, historians, and other prominent figures in Warsaw's artistic community in a few months; the list was passed on to the government's preservation office with a plea to declare the building, though only 44 years old, a protected site. Polish media took an interest. For the first time in four decades, Supersam was generating buzz.

**"Star Trek Sale Stuns Auctioneers,"**  
*BBC News*, 10/8/2006

A model of the Starship Enterprise has sold for \$576,000 (£308,000) at an auction of memorabilia from 40 years of the science fiction television series.

Before the sale, Christie's auction house in New York estimated the model would sell for about \$30,000 (£16,000). The 78-inch-long (198cm) miniature of the Enterprise-D, used in the title sequences of *Star Trek: The Next Generation*, made its TV debut in 1987.

More than 1,000 Star Trek items were sold over three days at the auction. Built by Industrial Light and Magic, the model was first used in the 1987 Star Trek episode "Encounter at Farpoint," and also appeared in the film *Star Trek Generations*. Estimates were regularly surpassed during the three-day auction in Manhattan, with fans spending more than \$7.1m (£3.8m) for set furniture, pointy Vulcan ears, and other props.

**"Over 150 Rare Paintings of Kalari Kovilakom restored,"**  
*The Hindu News*, 10/15/2006

Attacked by moths and termites, over 150 paintings, including a rare original lithograph of Raja Ravi Varma, and manuscripts, are on the road to restoration. The precious paintings are from the 'Kalari Kovilakom' in Kollengode in Palakkad district, which has been converted into an Ayurvedic hotel.

After two years of painstaking efforts, six paintings were restored by the Indian National Trust for Art and Cultural Heritage (INTACH). Thirteen palm leaves manuscripts from the palace were brought for restoration and identification.

The manuscripts contained treatments for snakebites, skin diseases, and various other ailments. Ayurvedic remedies had also been mentioned in some. K J Sohan, state coordinator of INTACH, said under the national Manuscript mission, any manuscript-- palm leaf or leather will be preserved. He said a survey conducted in Thiruvananthapuram had stated that there were 10 million palm leaf manuscripts in Kerala.

**"Restoration and Reunification for Berlin's Museums,"**  
*The New York Times*, 11/27/2006

It may be a decade or more before this city's monumental Museum Island finally shakes off the twin legacies of World War II and East Germany's communist regime, but with the reopening of the Bode Museum, this cultural park in the former East Berlin has taken another step toward recovering its place as one of the world's great centers of art.

With the restoration of the Alte Nationalgalerie, or Old National Gallery, in 2001, two of the island's five museums are now in fine shape. After an eight-year, \$209 million refurbishment, the Bode probably has never looked better since its inauguration as the Kaiser Friedrich Museum in 1904.

**"Recovering Pompeii Through Science,"**  
*Latest Science News.com*, 11/01/2006

Artists in ancient Pompeii painted the town red some 2,000 years ago, with a brilliant crimson pigment that dominated many of the doomed city's

wall paintings. Scientists from France and Italy have now reported, in the journal *Analytical Chemistry*, why those paintings are undergoing a mysterious darkening.

The synchrotron light of the European Synchrotron Radiation Facility (ESRF) in Grenoble (France) has provided new insight into this process and what produces it. Scientists have been wondering for many years why the red in Pompeii walls, made of cinnabar (HgS), turns black.

The most commonly acknowledged answer is that the exposure to the sun transforms cinnabar into metacinnabar, which is presented in a black colour. However researchers from ESRF found out that the chemical composition in the altered pieces was completely different to metacinnabar, and that various important chemical reactions had taken place in the different samples.

On the one hand, cinnabar had reacted with chlorine and led to the formation of grey chlorine-mercury compounds. The chlorine came from the sea and possibly "punic wax." On the other hand, the sulfation of calcite resulted in the development of black coating on the painting surface.

So what makes the red turn into black so quickly? "The chemical distribution of the samples is not stable, which means that atmospheric conditions probably play a role in this change of colours," explained Marine Cotte, the first author of the paper.

**"What Lies Beneath: Old Masters Under the Microscope,"**  
*The New York Times*, 11/05/06

New technology is allowing art experts to examine long-held beliefs about centuries-old works as never before. Probing the surface with X-rays or infrared light or dating the work by dendrochronology can reveal much about how a work was actually made.

Such analysis can also uncover many twists and turns in the long trip from the artist's studio to the museum wall. A team of investigators, led by Ron Spronk at the Straus Center for Conservation at Harvard University and Catherine A. Metzger of the National Gallery, poked and prodded centuries-old panels for *Prayers and Portraits: Unfolding the Netherlandish Diptych*, an exhibition of

15th- and 16-century paintings by masters of the Northern Renaissance.

Using advanced imaging and analytical techniques like infrared reflectography, binocular microscopy, and dendrochronology, they succeeded in conceptually “marrying” panels that had been thought to be unrelated — and also issuing some “divorces.”

**“Swede Gives Back Acropolis Marble,”** *BBC News*, 11/10/2006

A retired Swedish gym teacher is the toast of Greece after returning a piece of sculpted marble taken from the Acropolis more than a century ago. Birgit Wiger-Angner’s family held the marble for 110 years, but she decided to return it to Athens after hearing about Greece’s Elgin marbles campaign.

The move has boosted the international campaign to persuade the British Museum to return the Elgin marbles to Athens. The British Museum wants to keep its Parthenon marbles.

This is the second piece of the Acropolis jigsaw to be returned in the past two months. In September, Heidelberg University handed back a marble heel from the Acropolis’ Parthenon. But the British Museum is resisting growing international pressure to return the sculptures prized from the ancient Greek temple by Lord Elgin.

It insists that the sculptures were legally obtained from the authority governing Greece when Lord Elgin supposedly saved the sculpted tablets for Queen Victoria and a grateful nation. It does not seem troubled by the fact that the nationality of that authority was Turkish, because until the mid-19th century, Greece was occupied by the Ottoman empire.

**“Italy Clears Project to Stop Venice From Flooding,”** *Bloomberg.com*, 11/10/2006

Italy’s government today backed the 4.6 billion-Euro (\$5.9 billion) Mose project to build a system of adjustable dikes to protect Venice from high tides that flood the city. The project, slated for completion in 2011, includes the construction of 78 floodgates that can be raised by 110 centimeters (43 inches) to keep water from entering Venice’s lagoon.

High tides now flood the city several times a year, damaging historic buildings and disrupting transport. Mose has drawn criticism from environmentalists for the possible damage the barriers will cause to an already polluted and congested lagoon.

The project risked getting suspended with the arrival in May of the new government of Prime Minister Romano Prodi, which includes the Green party and the Communists, among the project’s fiercest detractors. Mose, which means Moses in Italian, takes its name from an acronym for experimental electromechanical module.

**“A £1Million Art Find Behind the Spare Room Door,”** *The Guardian*, 11/14/2006

Other paintings by Fra Angelico grace fine galleries and great churches or are carefully stored away in bank vaults, growing more valuable by the day. So it was with some astonishment that experts in Italian Renaissance art discovered two works by the Florentine friar hanging behind a door in the spare room of an elderly woman’s two-up, two-down in Oxford.

The paintings will go on sale next year and are expected to fetch more than £1m. More importantly for the art world, the two small paintings are thought to be long-lost pieces from one of the artist’s most important works - an altarpiece from the high altar of the monastery of San Marco in Florence commissioned by the Florentine despot and patron of the arts Cosimo de’ Medici.

The main panel, still at the monastery of San Marco, shows the Madonna and child. Eight smaller paintings of saints, believed to have originally been positioned in two rows of four on either side of the central image, were dispersed during the Napoleonic wars. Six of the eight are in private collections and galleries across the world but two, it turned out, were in the terrace house in Oxford.

**“Rome’s She-Wolf Younger Than Its City,”** *Discovery News*, 11/22/2006

The icon of Rome’s foundation, the Capitoline she-wolf, was crafted in the Middle Ages, not the Antiquities, according to a research into the statue’s bronze-casting technique.

The discovery quashes the long-prevailing belief that the she-wolf was adopted as an icon by the earliest Romans as a symbol for their city. It was thought to be either the product of an Etruscan workshop in the 5th century B.C. or the masterpiece of the 6th century B.C. Etruscan sculptor Vulca of Veii.

On the contrary, scholars have long established that the bronze figures of Romulus and Remus were added in the Renaissance, in accordance to the legend of Rome’s foundation.

Analysis carried out by restorer Anna Maria Carruba during the 1997 restoration of the bronze statue showed that the she-wolf was cast as a single unit. This technique was typically used in the Middle Ages.

**“Temple of Portumnus Restoration,”** *Wanted in Rome*, 11/27/2006

Works have begun to restore the rectangular Temple of Portumnus, frequently and erroneously known as the Temple of Fortuna Virilis. It stands in the Foro Boario or cattle market of ancient Rome, and was dedicated to the god who watched over the nearby river port.

The Temple of Portumnus owes its survival to the fact that it was converted in 872 into the church of S. Maria Egiziaca, named after an Alexandrian prostitute who saw the light. €250,000 have been provided by the World Monuments Fund and the Soprintendenza Archeologica Romana. The money is sufficient for urgent works required to protect an important cycle of mediaeval frescoes and repair damage to the building from a leaking roof and pigeon droppings.

**“Early Sketch of Stonehenge Found,”** *The Guardian*, 11/27/2006

They got the date wrong by some 3,000 years, but the oldest detailed drawing of Stonehenge, apparently based on first hand observation, has turned up in a 15th-century manuscript.

The little sketch is a bird’s eye view of the stones, and shows the great trilithons, the biggest stones in the monument, each made of two pillars capped with a third stone lintel, which stand in a horseshoe in the centre of the circle.

Only three are now standing, but the drawing, found in Douai, northern France, suggests that in the 15th cen-

tury four of the original five survived. Modern science suggests that the stones went up from 2,500 BC, with the blue-stone outer circle somehow transported from west Wales, and the double-decker bus-size sarsen stones dragged 30 miles across Salisbury plain.

There are two earlier images of Stonehenge, one in the British Library and one in the Parker Library in Cambridge, but the Douai drawing is unique in attempting to show how the monument was built.

It correctly shows tenon joints piercing the lintel, a timber construction technique, although in fact the real Stonehenge tenons only go partly into the top stone.

**“Church on the Edge of Rome Offers a Solution to Smog,”** *New York Times*, 11/28/2006

American architect Richard Meier’s church in Rome designed to commemorate the 2,000th anniversary of Christianity, has a coating that not only enhances Mr. Meier’s trademark white sculptural forms -- it cleans itself, minimizing the need for maintenance.

The new material created by Italcementi— which contains titanium dioxide, a white pigment — has another peculiarity. It “eats” surrounding smog. Titanium dioxide had been used in self-cleaning coatings before because of its photocatalytic properties: sunlight sets off a chemical reaction that accelerates natural oxidation.

Upon testing its new compound, however, Italcementi realized that the material could also break down nitrogen oxides emitted in the burning of fossil fuels. The cost efficiency of such products would depend on long-term performance as catalysts tend to lose their effectiveness over time.

Now that Italcementi’s product, TX Active, has gone beyond the testing phase, does it work? Three years after Mr. Meier’s church opened in Tor Tre Teste, in eastern Rome, the bulk of the majestic structure remains remarkably bright, in contrast to the grimy gray joints, which were not treated with the product.

**“Ancient Machine Opened the Heavens,”** *Los Angeles Times*, 11/30/2006

After a century of study, scien-

tists have unlocked the secrets of a mysterious 2,100-year-old device known as the Antikythera mechanism, showing it to be a complex and uncannily accurate astronomical computer.

The bronze-and-iron mechanism, recovered in more than 80 highly corroded fragments in 1901 from a sunken Roman ship, could predict the positions of the sun and planets, show the location of the moon and even forecast eclipses.

The international team of scientists reported today that the 1st-century BC Greek device, the earliest known example of an arrangement of gear wheels, shows a technological sophistication that was not seen again until clockwork mechanisms were introduced in the 14th century.

**“Jackson Pollock’s Bold No. 2 just got Bolder,”** *The Indianapolis Star*, 11/30/2006

For the first time in nearly a half-century, Jackson Pollock’s monumental frieze painting, *No. 2, 1949*, is being seen as the artist created it. One of Pollock’s pioneering paintings from his classic “drip” period, *No. 2* was covered front and back with polyvinyl acetate in 1959 by a well-intentioned museum conservator at the Munson Williams Proctor Museum of Art in Utica.

Application of PVA was a standard conservation practice at the time. Acting like shrink wrap, the veneer arrested the cracking and flaking that was slowly damaging the painting. But it also left a blue-gray sheen that dulled the Indian red background and the layers of glossy colors.

Now, after undergoing conservation treatment at Williams College in Massachusetts, the museum’s masterpiece is back on display. Thomas Branchick, a conservation expert at the Williamstown Art Conservation Center, treated the painting.

Branchick applied ethanol to the front of the painting. The ethanol left the paint untouched, but dissolved the PVA, which then seeped out the back, where it was soaked up using blotters. It took about 30 minutes to apply the ethanol. Branchick said the real time-consuming work came in testing the process and materials.

**“Restoration of Bulgaria’s Boyana Church About to End,”** *The Sofia Echo Daily News*, 11/29/2006

The unique Boyana church in Bulgaria’s capital of Sofia will be opened for visitors at 11am on December 4. Only the eastern part of the church will be opened for visitors.

The church frescoes are considered to be the most impressive masterpiece not only of Bulgarian church painting but also of the whole 13th-century Orthodox art. The church was included in UNESCO’s World Heritage list in 1979.

*And lastly, for something completely different:*

**“Nuke those sponges!”** *Los Angeles Times*, 1/29/07

Most people, confronting a sponge soaked in a disgusting brew of raw sewage containing fecal bacteria, viruses, protozoan parasites, and bacterial spores, would shriek, “Yuck!”

Not so researchers at the University of Florida. They deliberately created the stinking concoction to answer a question: What’s the best way to decontaminate the filthy, pathogen-infested kitchen sponge, found in even the most sparkling, granite-countered kitchen?

Their finding: Zap the sponges in a microwave. Study author and environmental engineering professor Gabriel Bitton said he’d long used the sponge-zapping method. “I decided I was really going to test it scientifically.”

His team found it took two minutes in a regular, off-the-shelf microwave to knock out more than 99% of the bacteria on filthy, wet sponges.

Common pathogens such as *E. coli* and salmonella cause at least 6 million cases of U.S. food-borne illnesses annually. The bugs survive well in damp sponges and cloths. Microwaving sponges and scrubbers about every other day for two minutes at full power will decontaminate them more effectively than putting them through a dishwasher cycle and greatly reduces the danger of food-borne illnesses, the researchers say.

The item has to be completely wet and should not contain metal. And be careful when you remove the items. They’ll be very hot.