

President's Letter

Mitchell Hearn Bishop

Recently I was at the Top of the Mark, that is the 19th floor of the Mark Hopkins Hotel on Nob Hill in San Francisco, enjoying a drink with friends and admiring the view of the city. During my father's war, it was where you went to toast the Golden Gate before shipping out to the war in the Pacific. It was generally believed that this would insure a safe return.

I don't think my mother joined the women in the "Weeper's Corner," the northwest corner of the room to watch his ship sail out the Golden Gate, but many did.

More than half a century later, the only reminder of the bar's wartime popularity is a framed black and white photo of a Flying Fortress with a nude woman in a martini glass painted on the side and the motto "Top of the Mark" beneath. I wonder if the "Top of the Mark" and its crew made it home.

We continued our evening by visiting the Tonga Room and Hurricane Bar at the Fairmont across the street. For those of you who have not had the pleasure, it is a Polynesian themed restaurant with an indoor pool with a boat floating in the middle. At 8 pm the band climbs aboard and plays from the middle of the pool. Periodically faux thunder and lightning herald a faux rainstorm that pours into the pool. I swear that the pace and duration of the storm has increased since my last visit years ago or maybe I'm just older?

The Tonga Room was created shortly after the Second World War presumably to provide those lucky enough to have made the toast at the Top of the Mark to the Golden Gate to take friends and loved ones to a bar where they could enjoy the "South Seas" ambiance they had recently enjoyed themselves. A disappointed warrior, my father's only comment on his naval service during the war was that the most difficult challenge he had faced was concocting club soda for the officers' clubs he had set up for rest and recreation in the wake of the American advance across the Pacific. He informed us that this could be accomplished by bubbling cylinders of compressed carbon dioxide through ordinary water. Apparently this ultimately produced a nicely carbonated effect. I've never tried this myself, having easy access to carbonated water, but I have no reason to doubt his word. My godfather had a different war, spending time on the Burma Road with a British unit. Such was the varied experience of the veterans of the "Good War." Many years and some wars later I found myself thinking how the South Pacific had woven itself into my life culminating in the fact that I was the President of WAAC and planning a conference in Hawai'i.

So, moving from faux Polynesia to the real thing, it's time to remind you that our Annual Meeting will be this October 9-11 at the Honolulu Academy of Arts (<http://www.honoluluacademy.org/>), a very beautiful museum in the heart of Honolulu. The new director of the museum, Dr. Stephen Little, has graciously agreed to honor us with a keynote address.

The first day of talks will be devoted to a spectrum of presentations about conservation in the Hawaiian islands and the special concerns that accompany conservation in the middle of the Pacific Ocean. Hawai'i has a great deal to conserve, running the gamut from archaeological sites to contemporary art and architecture. On page 3 of this issue of the *Newsletter* you'll find the call for papers for the conference. I hope many of you will submit papers. Ideally, if you have a topic relating to the Pacific or Asia, that would be great, but by all means please submit any talk you would like to give.

We are working on a variety of events for members attending the conference including a Banquet at Indigo Restaurant's "Opium Den" in Honolulu's historic

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President's letter, continued

Chinatown, right around the corner from the Hubba Hubba Club (sadly now abandoned) beloved by wartime servicemen and their younger counterparts well into the 50's and 60's. Chinatown today is home to a number of very good restaurants like Indigo and Duc's Bistro. As well, it is the best place to buy traditional leis and an amazing array of fish and produce, making Hawai'i one of the best places to cook on the planet (<http://www.chinatownhi.com/index.asp>). Close to Chinatown on the waterfront is the Aloha Tower where the Matson Line ships used to dock. The area is now a very pleasant mall and home to the Maritime Museum. You can still climb the Aloha Tower and take a look at the harbor. We are also planning a couple of receptions at various locations that will allow us to visit some of the other museums in Honolulu.

I would encourage you all to book your hotel and airfare early since this will lock in cheaper rates. We are not going to have a conference hotel but will be suggesting one of several hotels in case you would like to stay with friends and share transportation. Please watch the WAAC web site (<http://palimpsest.stanford.edu/waac/>) for more conference information which we will post as we have it. There is a bus system in Honolulu, but I would recommend renting a car or taking cabs. The distance from Waikiki to the Honolulu Academy of Arts is short but not really walkable except for the very fit and those with plenty of time.

We will also be having a silent auction at the banquet to benefit Ka'ala Farm. For details, see Claire Dean's description in this newsletter on the next page. Claire and Beverly Perkins will be coordinating the silent auction and soliciting items. We hope to match the success of last year's event at Portland. It was both a lot of fun and made a nice chunk of money for Arts Alive.

Conference events will also include a cocktail party on the first day of the conference, and we are working on a couple of tours after the conference. More details will be posted on the web site as soon as we have firm arrangements.

The mid-year board meeting for WAAC was held at the Getty Center on March 13th. Among the items discussed was the location of the next annual meeting. Molly Lambert will preside and has chosen Santa Fe, New Mexico as the site.

A great deal of discussion was devoted to finding a replacement, make that replacements, for Chris Stavroudis. We concluded that we will be looking for several positions. A Treasurer, a Membership Secretary, and a Fulfillments person to handle the shipping of publications and back issues of the newsletter. Since the meeting, Tania Collas has agreed to become our new Treasurer. Tania will be working with Chris until the Honolulu meeting and will then take over the job afterwards. We are very pleased to have Tania as our new Treasurer! We still need a Membership Secretary and someone to handle Fulfillments. If you are interested, please contact me or any other member of the board.

At the meeting we also welcomed Walter Henry as our new Web Editor on the board. With Walter's help we hope to mount more information for our members on the WAAC web site. The Hawai'i meeting will be the first time we will attempt to use our web site in an expanded way for this purpose. We are also looking at ways to automate the record keeping practices of WAAC to improve oversight and make it possible for the board to work more effectively.

I think this year will be an excellent time for us to hold our annual meeting in Hawai'i. The Hawaiian Islands are without a doubt one of the most beautiful places on earth and one of the most culturally varied. In conservation terms, all the most interesting issues confronting conservators can be found in Hawai'i. I hope you will join us in Honolulu in the fall and either get to know Hawai'i or become reacquainted.

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Deadline

Contributions for the September Newsletter should be received by the Editor before **July 30, 2003**.

Western Association for Art Conservation

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

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Mitchell Hearn Bishop

VICE PRESIDENT

Molly Lambert

SECRETARY

General information
New Memberships
Publication Orders

Odile Madden

TREASURER

Change of Address
Payments
Chris Stavroudis

MEMBERS AT LARGE

Claire Dean
Jane Hutchins
Nancy Odegaard
Donna Williams

WEB EDITOR

Walter Henry

Individual Membership in WAAC costs \$30 per year (\$35 Canada, \$40 overseas) and entitles that 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 that institution to receive the WAAC Newsletter and annual 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. WAAC's URL is: <http://palimpsest.stanford.edu/waac/>.

Call for Papers

This year's annual meeting is in Honolulu, Hawai'i, October 9th - 11th. If you would like to present a paper, please complete the Abstract Form (located on the back inside cover) and return it to Mitchell Hearn Bishop. You may also email the information. Please submit your abstract as soon as possible, but no later than August 1st. This year, we will have a focus on Hawaiian and Pacific-Asian topics but please feel free to submit a talk on any conservation topic. There is no limit to the length of abstracts, and presenters are encouraged to provide a comprehensive summary of their paper, as these will be printed in the *Newsletter* as postprints. Remember, for members unable to attend the meeting, this abstract will be the only account of your paper they will receive. If you need more space, please attach additional sheets of paper. All presenters must be registered as meeting attendees to be included in the final program. We are also asking you to provide a brief biography so that we can compile introductions for each speaker ahead of time. Lastly, do not forget to indicate what audio-visual equipment you will need for your presentation.

Mitchell Hearn Bishop

Second Annual SILENT AUCTION

We are delighted to tell you about the organization chosen to receive the funds generated by this year's Silent Auction in Hawai'i.

Ka'ala Farm, Inc.'s Cultural Learning Center lies in the upper Wai'anae Valley beneath the tallest mountain on Oahu, Mauna Ka'ala. Beginning more than 25 years ago, a group of Native Hawaiians decided to clear this historic, overgrown, and off limits area. They revealed terraced rock walls built hundreds of years ago for the purpose of cultivating kalo (taro) to feed the ancient coastal community.

Ka'ala Farm has since dedicated itself to teach the values and practices of the Hawaiian people of old. They provide Native Hawaiian cultural education and environmental conservation programs to schoolchildren, young adults, and elders. Programs include the growing of kalo and the making of poi, the making of kapa (Hawaiian bark cloth) and kapa beaters, and the growing of native plants for reintroduction to their natural habitat as well for the establishment of native plant gardens throughout the community.

Other programs include the restoration of natural water systems, ancient Hawaiian methods of navigation, paddle making, stone carving, as well as mapping and documentation of archaeological sites. Master canoe builders recently participated in teaching children the art of carving an 'opelu fishing canoe from a 27 foot koa log. In March it was blessed and entered the ocean for the first time. It will be used to teach the old ways of fishing and how to sustain rather than deplete the fish population of the ocean. Ka'ala Farm, Inc.'s endeavors continue to grow as they establish partnerships with other institutions and individuals throughout the local and larger community. The Learning Center's multifaceted approach to cultural education and the preservation of traditional ways of life fits perfectly into the vision we had when setting up the first auction last year.

It is now up to us to provide "the goods." As with last year, we hope that you will bring items with you to the meeting. If you will not be attending the meeting but would like to contribute either an auction item or a monetary donation, or if you have any other questions, please contact either J. Claire Dean (clairedean@aol.com or 503-331-1972) or Beverly Perkins (Perkins.b@attbi.com or 909-698-1520). Lastly, thanks to Downey Manoukian for providing the information on Ka'ala Farm.

Regional News

NEW MEXICO

Laura Downey is proud to announce the creation of Silverpoint Art Conservation, LLC. Her new company offers conservation consulting and treatment of photographs and works of art on paper. While based in Albuquerque, she encourages clients from Arizona as well as other nearby areas. Laura continues to work part-time at the University of New Mexico Art Museum, and in Spring 2003 she is teaching a "Museum Preservation" class. She is also co-teaching "Art Materials" with **M. Susan Barger** again this year. **Steven Prins** made two guest lectures for the Art Materials class.

Keith Bakker has returned to New Mexico from Boston. He has been working at the Maxwell Museum of Anthropology on a survey of their ethnographic collections in preparation for a move into

the new McKibben Building. He is also preparing a museum studies course in southwest conservation issues for the fall semester at the University of New Mexico. He is setting up a studio in Albuquerque for private work.

M. Susan Barger continues as the Project Coordinator of the Museum Infrastructure Project for small museums in New Mexico. Heritage Preservation has put an article on her program at www.heritagepreservation.org/NEWS/NMAM.htm.

Emily O'Brien is currently assisting **Teresa Myers** with surveying, packing, and treating of the Palace of the Governor's collections in preparation for the move to temporary storage while a new history museum is constructed.

Mina Thompson is currently researching conservation techniques for re-

verse-glass paintings and will begin her maternity leave from the Conservation Department in early June 2003.

The Conservation Unit of the Museum of New Mexico is pleased to announce the appointment of **Maureen Russell** as the new Senior Conservator. She will begin her position in May 2003, when the conservation department is also participating in a collaboration and professional exchange with conservators from the Instituto de Investigaciones Esteticas, of the National University of Mexico, on the investigation and analysis of Mexican Lacquerware from Michoacan.

Regional Reporter:
M. Susan Barger

In Appreciation: Don Francis

Donald Stephan Francis, owner of Don Francis Framing in Venice, California, died at his home in Palos Verdes, California on May 2. He was 54 years old.

Don received his MFA from Otis Art Institute, majoring in Ceramics and Design. Subsequently, he taught at Otis, Parsons School of Design, Pasadena Museum of Modern Art, Barnsdall Junior Art Center, and Barnsdall Arts and Crafts Center. He also exhibited his own art works throughout the Southern California area. In 1980 he established Don Francis Framing; his up-to-date and innovative techniques quickly became recognized and emulated. He was a key player and highly respected colleague in both the conservation and art communities working closely with renowned Los Angeles-based artists, collectors, museums, institutions, and corporations.

Don shared his knowledge and creativity freely. He presented at WAAC and other art-based conferences. He taught his staff and clients how to communicate clean, perfect, "sano" presentations in artwork of all sizes and materials. He undertook large-format artwork assignments with a special appreciation for preserving the artist's intent. He taught other professional framers his tricks and techniques. Don worked with the commercial manufacturers to maintain high standards of archival material. He regarded his clients and staff as peers and each were treated with his easy yet professional graciousness and honesty.

Don's most recognized quality was his ability to seize the moment. Whether undertaking complex art framing assignments, surfing the Pacific, enjoying his fine family and large network of friends, Don met each life event with sincere openness and acuity. His conversation conveyed a deep appreciation for the beauty, challenge, hilarity, sweetness, irony, and total sensation of whatever art, individuals, or aspect of nature he was encountering. He had an unaffected talent for encouraging and bringing out the best with his friends, personal and professional. He will be missed.

Mary Reinsch Sackett

ARIZONA

Nanette Skov is heading to Peru on June 9th for her seventh year of presenting a program in textile conservation.

Marilen Pool has recently completed the treatment of historic archaeological artifacts for the Sharlot Hall Museum in Prescott, Arizona. She is currently consulting with the Tucson Museum of Art on a collection of folk art.

Nancy Odegaard, Arizona State Museum, and **Cheryl Podsiki** (Kress Fellow) recently worked on a CAP update for Edge of the Cedars State Park in Utah. **Caroline Sakaguchi Kunioka** (Winterthur/Delaware) has joined ASM for the remainder of her third-year internship.

Teresa Moreno (ASM) recently delivered a lecture on conservation for Cochise College and coordinated conservation for the new *Pottery Detectives* exhibit. Chemist **Dave Smith** has been appointed adjunct conservation scientist at ASM. Project work at the lab includes protocol development for a portable XRF unit for pesticide and pigment studies, preparations for construction of a new lab, and the stabilization of 20,000 pottery vessels.

Brynn Bender and **Gretchen Voeks** recently moved into new labs in a new

environmentally controlled Western Archeological and Conservation Center! Third year intern (Delaware) **Lara Kaplan** is developing treatment methods for corroding metal objects previously treated with Manganese Phospholene #7.

Audrey Harrison and Kaplan are assisting Bender with a large archeological pot examination and treatment project from Joshua Tree Nat'l. Monument. Voeks continues working with Kalaupapa Nat'l. Historic Park on basic maintenance issues. She is also assisting several lighthouse sites with Fresnel lens conservation.

Regional Reporter:
Gretchen Voeks

GREATER LOS ANGELES

Chilean conservator **Fernanda Kangiser** joined Objects Conservation at the Los Angeles County Museum of Art in January for a nine-month fellowship, with funds generously provided by the Lampadia Foundation and the Getty Grant Program.

Paper conservator **Margot Healey** has left LACMA, deciding to become a full time mom. Margot will continue to work with Paper Conservation on special projects. **Soko Furuhata** attended the "History and Use of Pigments and Inks" workshop in February at the Nat'l. Park Service Conservation Training Center.

In March, **Joe Fronek** and the Conservation Center hosted a tour at LACMA for the Friends of Heritage Preservation, a cultural arts organization that generously provided funds last year for the structural stabilization of LACMA's four 16th- c. panel paintings by Bavarian artist Jan Polack. The panels were sent to the Metropolitan Museum last year for treatment by panel specialist **George Bisacca**. Joe has started the cleaning phase of the restoration, a project expected to last through 2003.

Ernst van de Wetering, professor of history of art at Amsterdam University,

was winner of this year's College Art Association / Heritage Preservation Award for Distinction in Scholarship and Conservation. Joe Fronek is a committee member for this award. Dr. van de Wetering, a founding member of the Rembrandt project, delivered a lecture, "Rembrandt, the Painter at Work" in April at LACMA.

Elisabeth Schlegel is continuing the treatment of a 1932 painting by Olinka Hrdy, in preparation for a permanent collection exhibition early next year. **Sandhya Jain** returned to LACMA in March to finish a thank project with **Victoria Blyth-Hill** and Paper Conservation.

Silverlake Conservation is pleased to announce that **Michael Reinis** has joined the staff as a conservation technician. With his fine arts background and four years of conservation experience, he brings a diverse set of skills to the firm. He has been working at the Griffith Observatory but will turn his attention to repairing a Guy Dill sculpture that toppled in a windstorm. In December and January, **Amy Green** spent several weeks repairing and re-staining a historic sidewalk at the Lafayette Complex Residence in Long Beach, CA. In February, Amy and **Linnaea Dawson** surveyed art installations in 11 branch libraries for the Los Angeles Cultural Affairs Dept.

Dana Senge has joined Griswold Conservation Associates as a pre-program intern. She and **Cyndi Eastright** have been focusing on treatment of the monumental animal sculptures by Carlo Romanelli from the Selig Studios for the Los Angeles Zoo. **Stefanie Griswold** and office manager **Lisa La Vine** are coordinating studio treatments of a Native American basketry collection for the Antelope Valley Indian Museum.

Claire Dean has assisted GCA in supervising the installation of the Ezcaray Retablo, a 24 foot tall Spanish Baroque estofado altarpiece, in the Cathedral of Our Lady of the Angels. The conservation treatment continues on site, with funding from the Getty Trust.

John Griswold lectured on conservation of natural stone monuments and site features at the National Museum of Natural

History in New York, during a consultation trip to the Cloisters Museum. John also provided installation consultation to Walt Disney Imagineering for a traveling exhibit at the Nat'l Museum of African Art and has been appointed to the Advisory Board of the Abraham Lincoln Bicentennial Congressional Committee.

Maya Elston, Associate Conservator, retired in March 2003. After 18 + years in the Dept. of Antiquities Conservation at the J. Paul Getty Museum, she looks forward to rest, relaxation, travel, and gardening. The Antiquities Conservation Dept. and the Antiquities Curatorial Dept. hosted a colloquium on the topic of "Re-restoring Ancient Stone Sculpture" March 21st and 22 nd. Now that all roadblocks have been cleared from the path of the Villa Museum renovation project in Malibu, the conservators and mountmakers in the Antiquities Conservation Department are moving ahead in their preparations for the re-installation of the Villa Museum galleries.

Odile Madden is pleased to announce the establishment of her private practice, specializing in objects conservation and conservation research. She continues her work with **Meg Abraham** and **Marco Leona** at LACMA.

Regional Reporter:
Virginia Rasmussen

HAWAII

The Japanese Print Conservation and Exhibition program at the Honolulu Academy of Arts entered its tenth year, under the direction of **Susan Sayre Batton**. Spearheaded by new Honolulu Academy Director **Stephen Little**, the program has expanded to include a pilot program to begin digitizing the collection in phase one and publishing the images and research database online in phase two. This comprehensive collection of ukiyo-e is the third largest in the world and will be the first collection available to scholars online.

Regional News, continued

Throughout the fall of 2002, the Academy presented *Ukiyo-e Renewed: Conservation of the Michener Collection of Japanese Woodblock Prints*, curated by Susan Sayre Batton. This exhibition displayed important prints from the collection along with “before treatment” photography and didactic panels to illustrate the conservation process. The Academy is dedicated to presenting one exhibition a year on the conservation of the print collection.

Besides continuous work from her steady clients for various exhibitions and maintenance of collections, **Downey Manoukian** has been working with contemporary artists, including one who will be showing at the Contemporary Museum’s biennial exhibition in Honolulu in June 2003. Downey enjoys assisting living artists, watching their creative process, and making sure they use good materials! Of course, they don’t always cooperate with the last.

From **Larry and Rie Pace**, Pace Art Conservation Enterprises: We have moved to new premises as of April 2003. The new information is below.

Regional Reporter:
Larry Pace

PACIFIC NORTHWEST

Jamie Hascall of Hascall Museum Services has had an interesting year with a great variety of projects. During the summer of 2002, HMS hosted **Sisavath Nhilatchay**, the Vice Director of the Luang Prabang Museum in Luang Prabang Laos, for a two-month internship in mountmaking. This project was funded by the Asian Cultural Council in New York and had invaluable help and inspiration from conservator **Bonnie Baskin**.

Jamie and Canadian conservator **Carl Schlichting** combined talents on an installation of ancient Roman glass at the Mission Hills Winery in Kelowna, B.C. Ongoing work at HMS has involved paleontology collections, Anasazi pottery

mounting, and mounts for glass artist Josiah McElheny. Metalworker **Ethan Frone**y has been a valuable addition to the staff at HMS, bringing a keen eye and creative blacksmithing skills to the shop.

Finally, Jamie Hascall and **Betsy Brown** will be married in Seattle in late April to the great delight of all involved.

J. Claire Dean was in South Africa again over November. No black mambas this time, but she did have a close encounter with a tick that resulted in a bout of African tick-bite fever and a miserable Christmas week at home in the UK on her way back to Portland. Field work is picking up as spring arrives and future projects include work with the US Army Corps of Engineers who are repatriating and relocating 42 petroglyph boulders to local Native American tribes.

In late March **Andrew Salomon**, Conservator, Rock Art Research Institute, Johannesburg, South Africa, stayed with Claire for 6 weeks of work experience. Claire enjoyed bringing Andrew to the Los Angeles area to meet colleagues in Southern California.

Marie Laibinis-Craft of MLC Objects Conservation completed a conservation survey of the Portland Art Museum’s outdoor sculpture collection last fall and will begin treatments and staff-training in April as part of the collections long-term maintenance plan. Marie opened her private practice in Portland after returning in 2000 from a 3 year stay in Amsterdam. She became a Professional Associate of AIC in 2002.

Nicholas Dorman tells us that the Seattle Art Museum’s Neukom Conservation Studio opens officially with an event for sponsors on April 15th.

As soon as the studio is complete, work will commence on preparing a number of paintings by Kenneth Callahan, Morris Graves, Guy Anderson, and Mark Tobey for the inaugural exhibition at the new Tacoma Art Museum.

The Canadian Museums Association is giving an Outstanding Achievement Award in the Conservation category to *Preserving What is Valued: Museums, Conservation and First Nations* by

Miriam Clavir, Senior Conservator at the UBC Museum of Anthropology. The book was published in 2002 by UBC Press.

Jan Cavanaugh, Paintings Conservator, will offer a course on the history and theoretical issues of art conservation in the Art History Department of the University of Oregon at Eugene during the first Summer Session, 2003.

Regional Reporter:
Peter Malarkey

SAN FRANCISCO BAY AREA

Debra Evans has been officially appointed Head of Paper Conservation at the Fine Arts Museums of San Francisco. **Michelle Facini**, Kress Fellow in the FAMSF Paper Lab, delivered a baby boy, Alexander Edward, on Feb. 20th.

The Fine Arts Museums of San Francisco hosted a cleaning workshop with **Richard Wolbers** this past fall for Bay Area conservators. The workshop was a great success, and it was a great chance to catch up with colleagues. The workshop enabled conservators **Tony Rockwell** and **Charlotte Seifen Ameringer** to devise a cleaning system for a large painting by Thomas Hill, *Yosemite Valley* owned by the Cantor Arts Center at Stanford University. The painting has several layers of discolored varnish topped by a thick urethane coating and has proved a very challenging cleaning.

Mary Schafer, third-year intern, is researching the materials and techniques of Rufino Tamayo. She is currently treating a 1931 painting by Tamayo, a recent museum acquisition. Charlotte Seifen Ameringer attended the Sackler Colloquia on the “Scientific Examination of Art” in Washington DC in March. Beginning this summer, FAMSF painting conservators will focus full-time on the American paintings collection in preparation for reinstallation of the new de Young Museum (set to open in 2005).

Meg Geiss-Mooney has prepared another sequined-bedecked costume for exhibition on behalf of the Oakland Museum of California. At this rate, she

Regional News, continued

estimates that Las Vegas must be in the cards for her career.

Will Shank has been working with **Kris Kelly** of the Getty Conservation Institute and **Karen Stokes** of the Getty Research Institute to plan a symposium on "Mural Painting and Conservation in the Americas" at the Getty Center from the 15th to 17th of May. Day Two of the symposium will address prickly matters of the dilemma of outdoor "secco," and other non-traditional, murals. How long can they last? How long should they last? Who chooses which murals are saved? What are the legal precedents for saving murals or letting them disappear?

Representatives of Golden Artist Colors, Keim Paints, and Novacolor will address the audience, as will an art lawyer, conservators, art historians, public art managers, and muralists themselves. Will anticipate a spirited day of discussions, and a Getty publication will result from the symposium.

The Conservation Department at SF-MOMA hosted a Mellon Collaborative Workshop November 4-8, 2002, entitled "Conservation Issues in Contemporary Photography" funded by the Andrew W. Mellon Foundation. **Theresa Andrews**, photograph conservator at SFMOMA, coordinated the workshop with the assistance of **Amanda Hunter Johnson**, current fellow in Contemporary Art.

Regional Reporter:
Paloma Añoveros

TEXAS

Robert Proctor, **Jill Whitten**, and **Rene de la Rie** lectured and taught a varnish workshop at the Hamilton Kerr Institute in September of 2002. Last fall they participated in a symposium and workshop on varnishes and retouching at the Conservation Unit that coincided with the University's 2nd Triennial Conservation Conference "The Image Re-Integration Meeting."

Whitten & Proctor Fine Art Conservation also recently contributed essays to the catalog for *The Color of Night* an exhibi-

tion opening at the National Gallery of Art in Washington, DC in April, 2003. Jill & Rob treated two Remington nocturnes belonging to the Gilcrease Museum in Tulsa, OK and *Call for Help* from the Museum of Fine Arts, Houston for this exhibition that highlights the artist's night time scenes.

Barbara Brown reports that during February 19-26, 2003, Senior Scientist **Dusan Stulik** and Assistant Scientist **Herant Khanjian**, from the Getty Conservation Institute, set up their portable analytical lab (including XRF spectrometer, FTIR/ATR unit, and microscope with digital camera) in the Photograph Conservation Lab at the Harry Ransom Center. With Barbara assisting, they examined a variety of photographic print materials from the HRC's Photography Collection.

This was the first trip for and use of the portable lab in the GCI's project to advance the identification and characterization of photographic materials. This project is part of GCI's role in a larger, collaborative project with IPI (Image Permanence Institute) and the CRCDG (Centre de Recherches sur la Conservation des Documents Graphiques) on the conservation of photographic materials.

Anja Lorenz, graduate student in photograph conservation at the University of Applied Sciences in Berlin, Germany, will be an intern in the photograph conservation lab working with Barbara Brown at the Harry Ransom Center from March through June 2003.

April Prince Smith was recently hired as a part-time Assistant Conservator III in the paper conservation department of the Harry Ransom Humanities Research Center. She graduated last year from the Graduate School of Library and Information Science Preservation and Conservation Program of the University of Texas at Austin and interned at the Library of Congress in the book lab. Along with her work at the Ransom Center, April is establishing a private book conservation practice in Austin, Texas. In June, April will speak at the annual meeting of AIC jointly with book conservator **Mary Wooton** on the treatment of two Mexican Incunabula.

Corinne Dune was recently hired as an Assistant Conservator III in paper conservation department on a National Endowment for the Humanities Grant to work on the B. J. Simmons Performing Arts collection at the Ransom Center. She graduated in 1994 from the French Institute for Art Conservation in Paris, France and interned at the Ransom Center in the photo conservation lab in 1993. While Corinne has experience with paper collections, she is primarily a photographic conservator and has been in private practice in Austin for several years.

This fall, **Stephanie Watkins**, Head of Paper Conservation at the Harry Ransom Humanities Research Center, attended the IIC-Book and Paper Conference in Baltimore, MD. In March, Stephanie attended the Photographic Materials Group Meeting in San Juan, Puerto Rico. Until June, she continues with the Treasurer's position. At that time, **Dana Hemmenway**, will assume duties of the PMG Secretary/Treasurer. Stephanie is also on the PMG Catalog Committee, along with **Nora Kennedy** and **John McElhone**. The next Book and Paper Group Annual will include an article on humidification and flattening techniques of paper by Stephanie based on the Archives Conservators Discussion Group.

Angelika Ansaldo Patti, a student in book conservation at the European School for the Conservation of Library Materials in Spoleto, Italy spent three months on an internship in paper conservation at the Ransom Center under the supervision of Stephanie Watkins. The Center is also pleased to host **Ho-Yo Chang** from the Graduate Institute of Conservation of Cultural Relics Studies at Tainan National College of the Arts, Taiwan, as an intern in paper conservation between April and September 2003. A University of Texas at Austin senior in liberal arts, **Sarah Norris**, has been volunteering in paper conservation in preparation for eventual entrance into a graduate program in conservation.

Richard Trela, Sr. Paintings Conservator/Director Conservation Center, Panhandle-Plains Historical Museum attended the National Trust for Historic Preservation Annual Conference in Cleveland, OH. He also reports that treatment of a full length allegorical por-

trait of Sam Houston for the Capitol is near completion.

Perry Huston and **Helen Houp** announce the relocation of their art conservation facility to Dallas, Texas. The new address is 2626 Lombardy Lane, Suite 106, Dallas, Texas 75220. Telephone: 214.366.4700 Fax: 214.366.4740.

Janet Hastings reports that the Conservation Department is pleased to welcome Sculpture Conservator **Laramie Hickey-Friedman** to the Menil Collection. Laramie received her Master of Science in Art Conservation at the University of Delaware and a Bachelor of Fine Arts in Metalsmithing at Temple University's Tyler School of Art. Her background includes several years of archaeological fieldwork in Turkey and a graduate internship at the Getty Museum. Her most recent post was a Mellon Fellowship in Objects Conservation at Los Angeles County Museum of Art.

Mark van Gelder recently completed the conservation treatment of a film production matte painting from the collection of director, Robert Rodriguez. This large matte had been used for Rodriguez's cult classic *From Dusk 'till Dawn*. Such matte paintings include painted panels of glass (for insertion of the live action elements into the scene), but their use in the film industry has now been almost completely replaced by computer graphics technology.

Ken Grant would like to apologize for not submitting a regional report for the previous issue of the newsletter. He pleads that he and his wife **Martha Simpson Grant** were preoccupied with the birth of their daughter Katherine Elise Grant at the time of the report submission deadline. He has stated for the record that it will not happen again - maybe.

Regional Reporter:
Ken Grant

Technical Exchange

Useful tool for tape removal for more than just paper conservators

Over the years, Elissa O'Loughlin and Linda Stiber Morenus have been presenting their informative workshop on tape removal, with enormous success. (If you ever have a chance to participate, it is certainly worth the time and money.)

One of their many useful tools and techniques is a heating mat, originally introduced to Linda and Elissa by Shannon Zachary, head of the Conservation Services Preservation Division at the University of Michigan.

Flexible heating elements may be preferable to heat spatulas when old pressure sensitive tape has to be removed. These heating mats are available in kit-form in a variety of sizes. A suitable sized mat can be chosen according to the width of tape. The heating mat allows the conservator to apply an even amount of gentle heat in order to soften old pressure sensitive adhesive. A rheostat (power controller) should be used to regulate the temperature of the heating element. A good deal of the slightly softened residue of the adhesive can be removed by spatula or scalpel in preparation for a following wet treatment with solvents, if that should be desired.

Shannon keeps their heating mats protected in a Mylar sleeve welded on 3 sides. The Mylar is stable at the low levels of heat used for tape removal and is easily replaced. The least convenient aspect of the mats is the wiring. However, mats and wires can be tamed with some non-metal weights. Shannon reminds us that the heat goes in two directions. When working in a book, for example, she protects the untreated side with several layers of blotter.

Equipment with the necessary accessories is available from Cole-Parmer Instrument Company. For more info go to www.coleparmer.com/catalog.

KAPTON Heater Kits operate at temperatures as high as 400°F (204°C). They're perfect when you need a variety of small heaters fast. Choose from individual heaters, or order convenient heater kits. Kits

include a sheet of 16 chemical-resistant KAPTON heater units in different shapes and sizes to meet your needs. Units come with pre-tinned solder pads to provide easy lead connections, a wattage chart, and instructions for selecting, wiring, and installing leads. Heaters operate on 120 VAC. Regulate heater temperature with a power controller sold separately. Kapton® heat mat kit, w/o adhesive, 120 VAC, \$125.00 (EW-36067-00).

An Extension Adapter Cord is required for all Kapton heater kits to connect heater mats to rheostat. This accessory comes with a three-prong plug for 120 VAC, tip jacks, and a ground wire alligator clip. It is available from Cole-Parmer for \$32.00, but could also be put together by yourself.

If you don't have a rheostat in your lab, here is a good, though slightly expensive, suggestion, also from Cole-Parmer. It is a solid-state controller featuring a power level dial independent from the illuminated "ON/OFF" switch. Control range is from 3 to 98% of input voltage. (This device also regulates universal motors up to 1 hp, or single-phase AC induction motors up to 1/2 hp, or incandescent lamps - not fluorescent lights). Mount the extruded aluminum housing to any surface; unit measures 6" W x 5 3/8" H x 3 1/2" D. Cole-Parmer® AC Power Controller, \$218.00 (A-02604-00).

The following three tips were kindly submitted by Tiarna Doherty.

Suture Needles and Threads

Suture needles can be purchased alone or pre-threaded. Common suturing threads are made of Gore-Tex or polyester (colors of the thread can vary). I have found that the polyester threads are significantly weaker than the Gore-Tex threads. When anchoring a suture thread of Gore-Tex or polyester, surgeons recommend tying at least three knots (varying the direction of the knot) since threads can be slippery. Suppliers of such threads include: Ethicon (a Johnson and Johnson company). An online catalogue is found at: <http://ecatalog.ethicon.com>.

W.L. Gore & Associates, Inc., 3450 West Kiltie Lane, Flagstaff, Arizona 86001.

Albrecht Gumlich, column editor

Telephone: 928 779 2771, fax: 928 779 3480. An online catalogue is found at: <http://www.goremedical.com>.

Silicone Socks

When heated needle tips are used in consolidation treatments, glue often sticks to the metal tip. In the 2001 AIC Paintings Specialty Group *Postprints*, Carolyn Tomkiewicz shared studio tips for the use of two heat conducting silicone rubber materials: Elastosil M1470 and Elastosil M4370 (both supplied in parts A and B) that are easily made into "feet" and "socks" for hot needle tips. Once cast, the silicone rubber will transfer heat from the needle but will stick to, or accumulate, adhesive.

The Elastosil M1470 comes as a thick putty that can be worked in a short amount of time by hand or with the use of tools. The Elastosil M4370 is a liquid that has a longer hardening time and requires dipping or pouring the materials into a mold.

In casting "socks" of this material to fit over a hot needle tip it was useful to use a series of pop rivets (found at a hardware store) of equal thickness as the hot needle. If one has access to a sanding belt, the tips of the rivets can be ground to mimic the pointed tip of the hot needle that will be used in the treatment. Using pop rivets allows for one to make numerous 'socks' by dipping the rivets into the liquid silicone rubber, allowing them some time to dry, and then repeating the process two or three times. Between repeated dipping of the rivets, one can suspend them by inserting them, upside down into polystyrene blocks.

The Elastosil M1470 and M4370 are produced by Wacker. While usually sold in large quantities, samples can always be requested from suppliers. These suppliers include: West coast- Walco Materials Group, 2121 Chablis Court Ste#100, Escondido, CA 92029. Tel.: 1 800 297 4541. marthabutler@walcomaterials.com; East coast: Rudolph Bros. & Company, 960 Walnut St., Canal Winchester, OH 43110. TEL.: 614-833-0707. Special thanks to John Hix and Elma O'Donohue for sharing these materials with me.

Water mister

Andrea Rothe recently introduced me to plastic water-misters that may be purchased in the beach supplies aisle of the local drug store. The mister, designed for beach-bums who need to cool down, may be purchased for approximately \$14. The container is made to fit on your belt. There is a handle to pump in order to create pressure, and the mist is dispensed through tube by means of a valve. One brand name recommended is the Misty Mate sport.mist (www.misty-mate.com).

New Golden Products

Historical Colors

Golden Artist Colors recently announced that it is adding eight new Historical Colors to its current Heavy Body acrylic product line. Each color in the Historical line has at one time or another, been considered controversial with respect to paint quality, lightfastness, or artist safety. The Golden Colors are produced as hue combinations of contemporary pigments. Care was taken to ensure the Historical Colors shared the working properties and color qualities of their predecessors.

The colors are: Indian Yellow Hue; Naples Yellow; Prussian Blue Hue; Manganese Blue; VanDyke Brown; Alizarin; Sap Green Hue; and Hookers Green. The Historical Colors product line will be available in 4 oz., 8 oz., 16 oz., 32 oz., and 128 oz. They will also be available in two different sets. One set will contain all colors in a 22 ml size and the other in a 2 oz. tube size.

Archival Aerosol Varnish

Golden's other new product is Mineral Spirit Acrylic Aerosol w/UVLS in Gloss, Satin, and Matte finishes, the first in a new product line — Archival Aerosol Varnish. The Aerosol has an adjustable fan spray tip for precise application with reduced overspray. The 12 fl. oz. cans contain enough product to achieve approximately 30-35 square feet of coverage.

Golden Artist Colors, Inc., 188 Bell Road, New Berlin, NY 13411-9527 USA, Phone: 607-847-6154, Fax: 607-847-6767, E-Mail: goldnart@goldenpaints.com, www.goldenpaints.com.

(edited company press release)

Lives of the Conservation Saints

(The first portion of this very lengthy manuscript appeared in Vol. 23 No. 2, of the Newsletter, May, 2001. It is evidence of the difficulty of the translation that it has taken so long for the next installment.)

St. Certifica

More is recorded of St. Certifica than can be written in a brief entry, although, oddly, little is actually known of her works or character. A toiler in the offices of the church, she is known principally for the extreme length of time it took for the faithful to achieve her canonization.

The lengthy writings concerning her, much of it taken from the List of the Objectors, describe the struggles to prove her miracles to those who doubted her true worth as a daughter of the Faith. In the early years many questioned the influence of her family, in most part her grandfather, on the fulfillment of her vocation; later some argued that her sainthood would have no beneficial effect on the true practice of the faith but would only expose the faithful to the sin of pride. Others protested that her elevation would cast favor on those who, like St. Certifica, had survived the rigors and sacrifices of the holy training and cast scorn on priests of more humble origins. Most did share the belief that the convocations and novenas which would be held in her honor would only serve good.

Her supporters remained staunch, and in the example of the church abroad, spent many hours and years gathering writings that would enable all to participate in her sanctity.

St. Lascaux and St. Lascaux

Descended from an old and distinguished family of revered chefs, the twin saints could trace their roots back to the early cave dwellers whose fabled recipe for game stew is said to have been recorded in antiquity but is now lost.

In the time of the brothers Lascaux the family honor exceeded its resources, nonetheless, the brothers had to struggle all their lives with the sins of pride and grandiosity. It was to humble themselves that they joined the Conservatine Order where they came in time to work in the monastery kitchens. In this modest service each developed his own recipe for a miraculous creamy white soup, made only of ingredients approved by the abbot. This brought honor and welcome donations from those who were blessed with the consolidation of their health upon drinking the soup.

A small illustration in the *Guide d'Hours du Duc de Micheline* is considered to portray the brothers. They are seen in their kitchen stirring pots of soup; one is shown with a halo of thirty six stars and the other with forty eight.

(continued on page 32)

Health and Safety

The Los Angeles Times published “Study Links Plastics to Embryo Ills,” by Marla Cone, in the April 1st edition. No April Fools joke, the article describes new evidence that bisphenol A (BPA) is a doozy of an estrogen mimic. Bisphenol A is used in the manufacture of polycarbonate and is also a common ingredient in epoxies.

Studies with mice showed that small amounts of BPA disrupt the way chromosomes align in the production of eggs. The error causes aneuploidy. The well known example in humans is Down’s syndrome.

The most disturbing aspect of estrogen mimics is that the effects are observed at very low levels of contamination. While the article doesn’t give numbers, it does say that the effects are being observed at levels close to or below what is generally considered safe.

A brief review: xenoestrogens or estrogen mimics are chemicals that trigger the receptors for the hormone estrogen in the human body in both males and females. Hotly disputed by the plastics industry, there is considerable circumstantial evidence that this interfering with the endocrine system is happening and is not good.

As is often the case with xenoestrogens, the discovery of BPA’s interference with chromosome alignment was accidental. In 1998, researchers in three different labs at Case Western Reserve University found a sudden increase in chromosomal abnormalities in the mouse eggs they were studying.

Initially, they suspected a genetic mutation was the cause. Instead, they found that a worker had cleaned the mouse cages and water bottles with a too-harsh detergent. The alkaline detergent caused sufficient quantities of BPA to leach out of the plastic to cause eight times the aneuploidy and 20 times the errors in chromosomal alignment in the mouse eggs.

Long time readers will remember that xenoestrogens have been a favorite topic in this column. Please see: *WAAC Newsletters* 20/3 (September 1998); 18/3 (September 1996); 18/2 (May 1996); 18/1 (January 1996); 17/1 (January 1995); 16/2 (May 1994); and as far back as 13/3 (September 1991) when the terms estrogen mimic and xenoestrogen were not yet in common use. But it has been a while since the topic was discussed here.

A few weeks ago, a WAAC member sent an email asking what I knew about Triton X-100 being toxic. So, let me review what I said in September of 1998:

First off, Triton X-100 is not toxic. Its degradation products, however, are potential estrogen mimics. According to Dr. Ana Soto (one of the researchers I mentioned in the January 95 column), Triton X-100 (octylphenol polyethoxylate) is itself not a xenoestrogen. Rats, however break it down into octylphenol, which is a strongly estrogenic.

It is likely, and as yet there is no evidence to the contrary, that humans metabolize Triton X-100 similarly. Studies by Richard Wolbers have also show that under artificial aging, the polyethoxylate chain is slowly lost and only the octylphenol remains.

Throughout the European Union, the discharge of octylphenol and nonylphenol ethoxolates which includes the popular Synperonic N (the European equivalent of Triton X-100) has been banned, largely on the basis of their effects on fish at very low levels in sewage effluent.

I think, as a profession, we should avoid Triton X-100 and other octylphenol and nonylphenol based surfactants if other detergents work as well. Years ago, I suggested Triton XL-80N as a replacement. XL-80N was formulated by Union Carbide as a fish-friendly replacement for X-100. (Fish respond to estrogen mimics much more obviously than mammals, and waste water contaminated at very low levels has been found to disrupt breeding and development of many species.)

For those situations where XL-80N doesn’t perform as well as X-100, Triton X-100 can certainly be used. However, I would do so with caution. Avoid exposure. In particular, wear gloves. Latex gloves should be changed frequently while working. And, if you work with other conservators, you have a responsibility to protect them from exposure, too.

Is Triton X-100 toxic? Most definitely not. Can it affect you or your unborn child? Possibly.

Should you refuse to work with it? That is, of course, your choice. Consider that you are probably surrounded by similar chemicals in everyday detergents and plastics. Do you practice safe sex? Well, you are likely exposed to Nonoxynol-9, polyethoxylated nonylphenol, the spermicide. And what about BPA? Do you work with epoxy resin? (Definitely wear gloves and other personal protective equipment when working with epoxy. But you do that anyway, right?)

I think every studio/lab that has Triton X-100 should also have a bottle of Triton XL-80N (or equivalent) available. On the other hand, Triton X-100 is not the anti-Christ, nor even in the same category as benzene, methyl alcohol, lead, or mercury salts.

Last month’s column “Mercury, the Other Heavy Metal” generated more than the usual buzz. Ok, I don’t know if “buzz” really applies to a hand full of emails and comments, but they were wonderfully gratifying to receive.

In case you didn’t read last month’s column (and even if you did, I’m just so darned proud of it that I’m going to mention it again), here is an explanation for mercury contamination. The short version: Mercuric chloride, the material historically used as an insecticide on collection items, is photosensitive to UV. It can be sensitized by humic material and iron oxide (and many other materials, I’m sure) to absorb visible light. When it absorbs light, analogous to latent image formation

Chris Stavroudis, column editor

in silver halide, a mercuric site in the crystal is reduced to metallic mercury. Once reduced, the metallic mercury can volatilize and contaminate the object's environment indefinitely.

This implies that objects treated with mercuric chloride will contaminate their surroundings (air, storage cabinets, other objects) by releasing mercury vapor. Exposure to light will increase this behavior, but dark storage will not make it go away, at least in the short run, once some degree of photoreduction has taken place. Good housekeeping, therefore, is not sufficient to prevent cross-contamination and exposure of collection personnel to mercury vapor. (The level of mercury exposure will have to be measured by air sampling to determine if it is occurring at hazardous, i.e. actionable, levels, but I would strive for a zero exposure environment.)

Also of note, the mineral cinnabar (or the pigment vermilion), mercuric sulfide, is photosensitive to visible light without the aid of a sensitizer. Upon exposure to light it releases mercury vapor. I wonder if that explains the light-catalyzed transition from the red, hexagonal form of mercuric sulfide, to the black, cubic structured metacinnabar. I posit that as metallic mercury volatilizes from the less stable hexagonal structure, it leaves holes in the crystalline lattice. At some point, the structure is sufficiently disrupted that the crystal can spontaneously reorganize into the lower density configuration of black metacinnabar.

Tania Collas at the Los Angeles County Museum of Natural History (see her article elsewhere in this issue) did some quick tests which lend credence to my speculation about mercury contamination in collections. She was able to show that mercuric chloride does release mercury vapor upon light exposure when placed with iron oxide pigment (watercolor in her case). She confirmed that cinnabar mineral specimens are indeed releasing mercury.

And, she found that old collection cabinets that no longer contain mercury treated objects still give positive test results for mercury vapor. (I think what has happened in this case, no pun intended, is that the mercury vapor has adsorbed onto and diffused into the inner surfaces of the cabinets and is now being slowly released back into the air.)

So, what to do? My recommendation is to co-opt an idea that came out of the Getty Conservation Institute some years ago for the control of volatile organic acids in display cases. Attach a small fan to a mercury absorbing respirator cartridge and circulate the air within contaminated storage cabinets. A swatch of the mercury vapor indicator material could be incorporated into the outlet stream and allow the filter effectiveness to be monitored. This proposed contraption hasn't been experimentally demonstrated to work, but it should. Note that it also contains the contamination; the only hazardous material to dispose of is the spent cartridge.

Preparing this column, I had to leaf through my old columns looking for previous references to estrogen mimics. I realized that I've been remiss. For years, in every May issue of this *Newsletter*, I would exhort whatever audience made it to the end of the column to remember to change the batteries in their smoke alarms at home and in their studios. It seems it's been a while since offering this advice, so consider yourselves exhorted. And since I try to do everything that I write about, I checked my own smoke detector batteries. While still alive, they were five years old. Oops!

So you are probably wondering, how did Chris know that the batteries were five years old? When I install batteries in a critical device, I mark them with a piece of tape and write the installation date on the tape. A tad anal retentive, I'll grant you, but I would have sworn that none of the batteries were older than two years if not for the date on the tape.

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. Paperbound and printed on acid-free stock.

Price, postpaid:
\$8.85 (\$6.60 per copy for orders >10 copies)

**Make your check payable to
WAAC. Mail your order to:**
Nancy Odegaard

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

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Evaluation of the Use of Aquazol as an Adhesive in Paintings Conservation

Introduction

There are many adhesives available to conservators for consolidation. Adhesive choice is usually governed by material compatibility, stability of the consolidant, reversibility/re-treatability options, and the conservator's familiarity with the adhesive. Aquazol is a relatively new adhesive in conservation practice that has shown great potential in a variety of uses. Aquazol is an attractive material because of three of its characteristics: it has a relatively wide range of solubility; it is thermally stable; and it is non-toxic. While it is becoming more widely used, very little general information is available in the conservation literature. Therefore a project was undertaken to gather information on how Aquazol is being used in practice and to perform some basic empirical tests. The testing was designed to determine response to high relative humidity (RH), working properties, adhesion, hardness, flexibility, drying rate, and removability. Since one of Aquazol's virtues is its solubility in water, gelatin and sturgeon glue were tested along with three molecular weights of Aquazol to allow a comparison. In addition, the behavior of Aquazol films made in deionized water (DW) and isopropanol/ water (IP/DW) were compared. Because of the variations in the use of Aquazol in practice, the results of the testing will be present here and the use in practice will be summarized in the next *WAAC Newsletter*.

Characteristics

Aquazol is poly(2-ethyl-2-oxazoline) or PEOX, a tertiary amide polymeric material based on the monomer 2-ethyl-2-oxazoline. (Figure 1). Aliphatic tertiary amides tend to be one of the more chemically stable forms of nitrogen, therefore PEOX might be expected to be relatively stable under ambient conditions. Aquazol is available in three MWTs: 50, 200, and 500. They differ only in chain size and are completely miscible with each other. Aquazol resin is an off-white solid with a glass transition temperature (T_g) range reported by the manufacturers to be 69°-71°C for the amorphous solid. (Polymer Chemistry Innovations 2002; Chiu et al. 1986). However, a T_g of 55°C is reported for a dried film of Aquazol 500 made from an aqueous solution. (Wolbers et al. 1994; Chiu et al. 1986). Residual water from the solvent will depress the T_g . The T_g may also be molecular weight (MWT) dependant: the lower MWT Aquazols would be expected to have lower T_g .

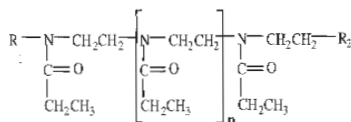


Figure 1. Structure of poly(2ethyl-2-oxazoline) (PEOX), trade name Aquazol.

Aquazol is soluble in water, methanol, ethanol, polypropylene glycol, acetone, methylene chloride, and methyl ethyl ketone, and slightly soluble in toluene and n-pentane, among other solvents. (Chiu et al. 1986). In aqueous solutions it is reported to be pH neutral. This means that the pH of the aqueous Aquazol solution will be close to the pH of the water used. Different molecular weights of Aquazol

and some other miscible polymers can be mixed uniformly together without phase separation. It is thermally stable and is stable under artificial aging conditions. (Wolbers et al. 1994).

Its properties include its polymer compatibility; it has the ability to promote adhesion and lamination in a broad range of materials. One of the polymers that it is compatible with is wax.

It has low viscosity and forms a good film. The manufacturer reports that the viscosity of Aquazol is linear with increasing concentration of resin. In water, the solutions have very low viscosity compared to polyvinyl acetate (PVA) in water. In alcohols, the viscosity decreases further. (Polymer Chemistry Innovations 2002).

Its non-toxicity makes disposal easier. (It has been U.S. FDA approved as an adhesive for food labels). No special precautions need to be taken.

Commercially, Aquazol has been used as an additive in an aqueous fluid to quench hot metals because it is environmentally safe; as the main binding agent in water soluble, hot-melt, and pressure sensitive adhesives because of its thermal stability; as an organic binder for advanced ceramic greenware because of its strength at low concentrations; and as an aqueous sizing for fiberglass in order to promote the adhesion of polyesters because of its compatibility. It is used in many diverse applications especially where water-solubility and thermal stability are highly desired. There is interest in using Aquazol for coatings for ink jet printers.

History in Conservation

Aquazol was originally investigated in conservation as a consolidant for glass because its refractive index is similar (n_D (Aquazol) = 1.520±0.001; n_D (glass) = 1.529) and because there are very few adhesives for glass. (Chiu et al. 1986; Wolbers et al. 1994). It has been used as an adhesive, consolidant, and inpainting medium for oil paintings, paintings on glass, painted furniture, and watercolors. (Lewis 1995; Wolbers et al. 1994; Friend 1996). Furthermore, the addition of Aquazol to Paris whiting, among other fillers, results in a carvable filling material. (Friend 1996; Anonymous 2000). It has also been used as a consolidant for severely deteriorated enamel (Magee 1999) and unfired clay figures (Ventikou 2001) as well as a gilding preparation (Shelton 1996; Sawicki 2002).

Empirical Testing

The purpose of the empirical testing was to gain an idea of how the different molecular weight Aquazols compare in use with popular aqueous adhesives. In addition Aquazol in a combination of water and alcohol and blends of the different molecular weights were tested. The adhesives tested can be found in Table 1.

Aquazol solutions were prepared by suspending the resin in a cheesecloth bag in the solvent and stirring with a magnetic stir bar and plate. No artificial or natural aging experiments were done.

Table 1. Adhesives Tested

Adhesive	Concentration (w/v)
Gelatin	10% in deionized water (DW)
Sturgeon glue	7% in DW
Aquazol 50	10% in DW
Aquazol 200	10% in DW
Aquazol 500	10% in DW
Aquazol 50	10% in 9 parts isopropanol:1 part DW (IP/DW)
Aquazol 200	10% in IP/DW
Aquazol 500	10% in IP/DW
50 and 500 1:1*	10% in DW
50 and 500 1:1*	10% in IP/DW
50 and 500 9:1*	10% in DW
50 and 500 9:1*	10% in IP/DW
Jade 403**	Diluted 1:1 with DW

* Only a limited number of blends were tested for the effect of RH on adhesion.

** Jade 403 was only included in tests for hardness and for moisture uptake and loss.

Adhesion Testing

For adhesion testing, three milliliters of each adhesive solution (unless indicated, all adhesives except Jade 403 were used in tests) was spread onto a four inch square of commercially oil primed linen on a level surface. The canvas had to be pre-wet with ethanol in order to allow the aqueous solutions to spread evenly. The films were allowed to dry for five days. The tape test method (ASTM D 3359-97) using Permacel 99 tape was then followed to evaluate the relative adhesive strengths. A second set of squares was first heat sealed with a hot spatula before testing. A third set of commercially acrylic primed cotton duck squares was also prepared for comparison. The adhesives applied to the acrylic squares all penetrated the squares so well that no measurements could be taken.

At standard room conditions (~70°F, 55% RH), the animal glues were more brittle than the Aquazols. At standard conditions they did not adhere to the primed canvas as well as at elevated RH. The animal glues and the Aquazol 50 and 200 in DW penetrated the ground somewhat, which affected the results. The Aquazol solutions in IP/DW all penetrated the ground so well that no adhesion testing could be done.

The sturgeon glue appeared to adhere to the primed canvas squares better than gelatin. The Aquazols appeared to adhere similarly to gelatin. There were differences between the different MWT of the Aquazols but they appeared to be more dependant on the film thickness than on the MWT. Although the same volume of each adhesive solution was applied to the oil primed canvas squares, the Aquazol 500 formed a thicker film and conformed to the canvas weave less, which influenced how well the Tape Test removed adhesive from the canvas.

Adhesion Testing at Elevated RH

Four sets of canvas squares were prepared as above with a limited set of adhesive solutions. The adhesives compared were Aquazols 50, 200 and 500 in DW, gelatin, sturgeon glue, and Aquazol 200 in IP/DW.

Each set was placed in a RH chamber prepared according to ASTM E104-85. After five days in the chamber, the adhesion was tested with the tape test. (The manufacturer indicates that Aquazol reaches equilibrium at 50% RH, 74°F, in 5 days.)

The relative adhesion in varying RH can be summarized as follows. In general, gelatin and sturgeon glue adhered better to the canvas as the RH increased. The adhesion of the Aquazol to the canvas appeared to decrease as RH increased past 75% RH. All of the Aquazols gelled at 84%, and at 97% RH the Aquazol 50 flowed.

Drying Rate

One milliliter of the adhesives was spread onto a clean, level glass slide. The films were dried at standard room conditions. After the films were no longer liquid (~6 hours) they were monitored for weight loss over 10 days on a Mettler analytical balance ($\pm 0.005g$).

All of the adhesives in water had the greatest weight loss towards the end of the first day. After that time, the changes in weight were so small that they could not be measured accurately with the balance. The Aquazols in IP/DW dried faster: within half of the first day. The weight changes after this time were also small, indicating that there does not appear to be a prolonged drying time for Aquazol.

Moisture Uptake

Aquazol, gelatin, and sturgeon glue are hygroscopic. Their ability to absorb and hold onto water was evaluated by preparing films on glass slides as described in the Drying Rate experiments. The films were allowed to dry for 5 days at standard room conditions before each set of slides with adhesive films was placed into chambers at 33%, 75%, 84%, and 94% RH. The slides were monitored for weight gain, or loss, over 8 days on a Mettler analytical balance. The adhesives compared were Aquazol 50, 200 and 500 in DW, Aquazol 200 in IP/DW, gelatin, sturgeon glue, and Jade 403.

At 33% RH all of the Aquazols appeared to reach equilibrium after 4-5 days and had moisture losses ranging from 4-7%. Gelatin and sturgeon glue appeared to reach equilibrium in 1 day and had moisture losses of 3% and 4% respectively. By comparison, PVA reached equilibrium in 1-2 days, and its moisture loss was 1%.

The results of the moisture uptake experiments are summarized in Table 2. At 75% RH all of the Aquazols appeared to reach equilibrium after 4-5 days and had moisture uptakes ranging from 7-11%. The Aquazol 200 in IP/DW had a distinctly lower moisture absorption level than the Aquazols in DW. Gelatin and sturgeon glue appeared to reach equilibrium in 1 day and had moisture uptakes of 4% and 5%, respectively. PVA reached equilibrium in 1-2 days and its moisture uptake was 0.5%.

Evaluation of the Use of Aquazol as an Adhesive in Paintings Conservation, continued

At 84% RH all of the Aquazols appeared to reach equilibrium after 4-5 days and had moisture uptakes of 18-23%. Again, the Aquazol 200 in IP/DW had a distinctly lower moisture absorption level than the Aquazols in DW. Gelatin and sturgeon glue appeared to equilibrate in 1 day and had moisture uptakes of 10% and 12%, respectively. PVA reached equilibrium in 1-2 days, and its moisture uptake was 1.5%. (Figure 2).

At 97% RH all of the adhesives tested, including PVA had significant moisture uptake. All of the Aquazols appeared to reach equilibrium after 5 days and had moisture uptakes ranging from 60-70%. However, after day 6, Aquazol 50 in DW began to flow off the slide and could no longer be monitored accurately. Both Aquazol 50 in DW and Aquazol 200 in IP/DW showed signs of loss of adhesion to the glass slide. Gelatin and sturgeon glue appeared to reach equilibrium in 1-2 days, and had moisture uptakes of 35% and 45%, respectively. Gelatin developed mold growth at this

RH. PVA reached equilibrium in 1-2 days and its moisture uptake was 13%.

In general it appears that Aquazol takes longer to reach equilibrium when environmental conditions change than gelatin or sturgeon glue, thus it has a slower response time. However, all of the Aquazols absorb more water than gelatin, sturgeon glue, or PVA. It is interesting that Aquazol in alcohol appears to absorb less water than Aquazol in DW.

Shrinkage

Thin films of Aquazol, gelatin, and sturgeon glue were cast onto 0.3mm Mylar in order to allow shrinkage of the films to be observed. One milliliter of each adhesive was spread onto a 5 in. x 2 in. Mylar strip on a level surface. The films were allowed to dry and curl the Mylar film. The adhesives tested were Aquazol 50, 200 and 500 in DW, gelatin, sturgeon glue, and Aquazol 200 in 9 parts IP to 1 part DW.

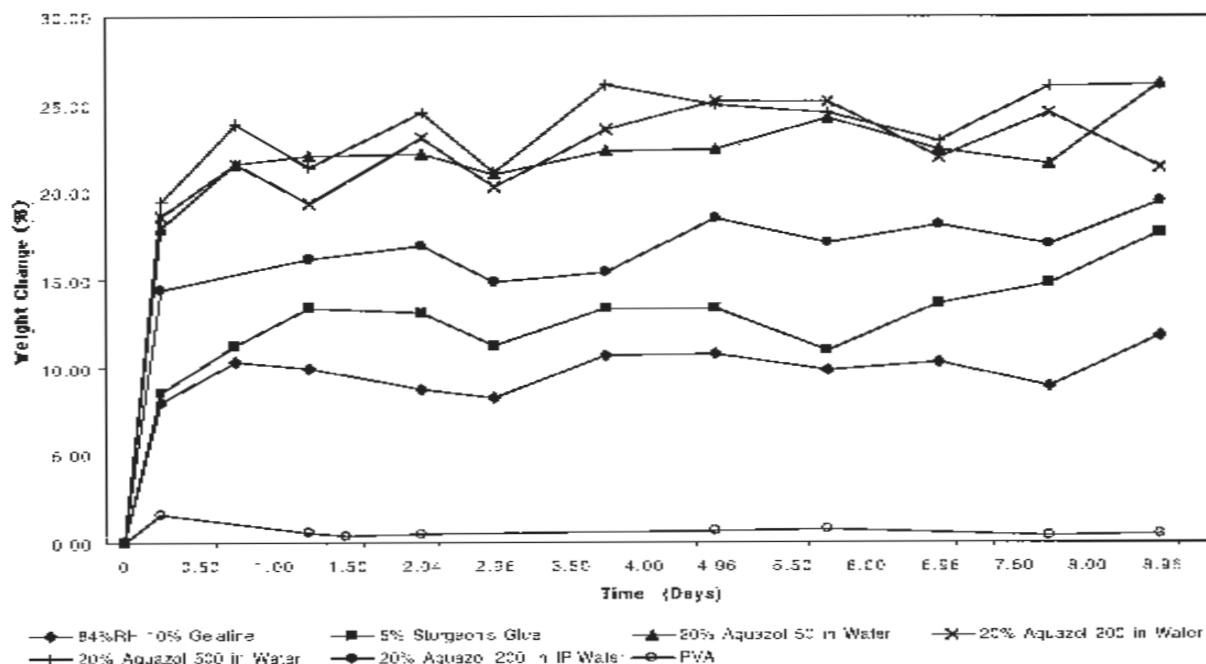
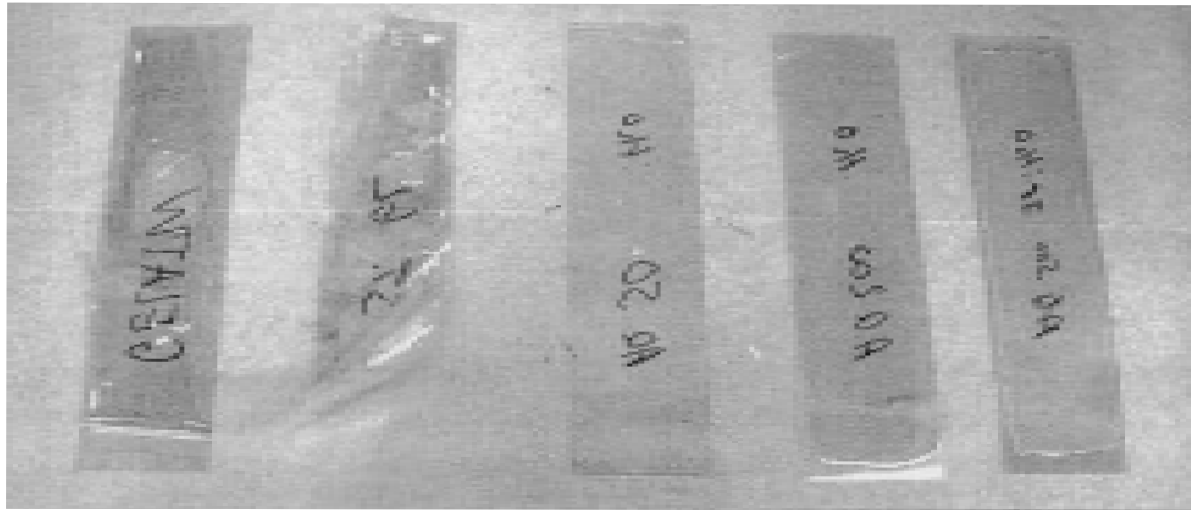


Figure 2. Moisture uptake at 84% Relative Humidity

Table 2. Summary of Moisture Gain

Adhesive	75% RH		84% RH		97% RH	
	Days to Equilibrium	Weight Change (%)	Days to Equilibrium	Weight Change (%)	Days to Equilibrium	Weight Change (%)
10% Gelatin	1	4	1-2	10	1-2	35
7% Sturgeon Glue	1	5	1-2	12	1-2	60-70
10% Aquazol 50, 200, 500 in DW	4-5	10-12	4-5	18-23	5	60-70
10% Aquazol 200 in IP/DW	4-5	~8	4-5	~15	5	60-70
Dilute Jade	1-2	~0.5	1-2	~1.5	1-2	~13

Evaluation of the Use of Aquazol as an Adhesive in Paintings Conservation, continued



10% Gelatine in DW 5% Sturgeon Glue 10% Aquazol 50 in DW 10% Aquazol 500 in DW 10% Aquazol 200 in 9:1 IP:DW

Figure 3. Shrinkage of Adhesives on Mylar

Both gelatin and sturgeon glue curled and shrunk quite a bit. The Aquazols did not seem to shrink much at all. (Figure 3).

Ease of Removal

A volume of each of the adhesive solutions was applied to a 4 in. x 4 in. smooth, glazed black ceramic tile. Because of the differences in wetting ability of the different solutions, the volume of solution applied in order to get complete coverage ranged from 3-6 ml.

The tiles were allowed to dry at ambient conditions for 5 days. Removability was a subjective evaluation of how each test solvent removed the film by gently rocking a swab containing minimal solvent over the surface. Conservators in the conservation department of the Los Angeles County Museum of Art tested DW, IP, ethanol, and acetone as solvents. They made observations about how the films reacted to each solvent, the time it took to remove the adhesive with each solvent, and their personal solvent preference for re-

Table 3. Removability Results.				
Adhesive	DW	Isopropanol	Ethanol	Acetone
Gelatin	Easily removed.	No effect.	No effect.	No effect.
Sturgeon glue	Easily removed.	No effect.	No effect.	No effect.
Aquazol 50 (in DW or IP/DW)	Resin smeared or turned gummy.	Resin smeared or turned gummy.	Best.	Best.
Aquazol 200 (in DW or IP/DW)	Resin smeared or turned gummy.	Left tideline, smeared or turned gummy.	Left tideline, smeared or turned gummy.	Best.
Aquazol 500 (in DW or IP/DW)	Resin smeared or turned gummy.	Left tideline, smeared or turned gummy.	Left tideline, smeared or turned gummy.	Best.
Aquazol 50/500 1:1	Resin smeared or turned gummy.	Left tideline, smeared or turned gummy.	Left tideline, smeared or turned gummy.	Best.
Aquazol 50/500 9:1	Resin smeared or turned gummy.	Left tideline, smeared or turned gummy.	Left tideline, smeared or turned gummy.	Best.

Evaluation of the Use of Aquazol as an Adhesive in Paintings Conservation, continued

moving each adhesive. The adhesives tested are listed in Table 1 (excluding Jade 403).

The Aquazol solutions in alcohol wet the tiles better and spread more evenly than those in DW. The protein solutions also wet the tiles well. Of the Aquazol solutions in DW, the higher molecular weight resins wet better than the lower. The results of the removability tests are summarized in Table 3.

Ethanol was criticized because it spread quickly into the resin and could not be easily controlled. When the resin became gummy, it often left a residue even when mechanical action was used. There was no significant difference between Aquazol solutions made in DW or IP/DW. The mixtures of Aquazols showed no significant difference in their response to the solvents from that of the pure Aquazol resin coatings.

Flexibility

Films of the adhesive were cast by pouring the solution into a 3 in. x 4 in. area defined by a dam of non-silicon caulking on 0.3mm Mylar. A non-silicon release spray was also used. Up to 21 ml. of each solution was required to cast a homogeneous film. The films were allowed to dry for 10 days before testing. The dried films varied in thickness: gelatin 0.26mm; sturgeon glue 0.10mm; Aquazols 0.20 to 0.27mm. Uniform film thickness was not attempted for this preliminary comparison and also proved unnecessary as the Aquazols were much more flexible than the animal glues. Flexibility was tested by bending the free films over a series of dowels ranging from 1/16 in. to 1 in. in diameter, as described in the Mandrel Bend Test (ASTM D 4338 -97).

The gelatin film was very brittle and could not be bent at all. The sturgeon glue film was very fragile but could be bent slightly. However it cracked when wrapped around the 1 in. dowel. All of the Aquazol films were rubbery and flexible and did not break or crack on even the smallest dowel. The films made from Aquazol in DW were less rubbery than those made in IP/DW. Of the films made in DW, Aquazol 500 was stiffer than Aquazol whether 200 or 50. The films made in IP/DW did not exhibit this distinction. The films made from blends of Aquazol 50/500 did not demonstrate any differences from the sheets of pure resin.

Hardness

Hardness was determined by following the pencil hardness test as described by ASTM D3363-00 using Staedler Mars Lithograph 100 Proart Graphic Drawing Pencils. Films cast on glass slides, prepared as described in Moisture Uptake, were used. Dilute Jade 403 in DW was also tested for comparison. Film thicknesses were measured with a micrometer. The film thickness of gelatin and sturgeon glue was 80 and 40um, respectively. The film thickness of the Aquazols was between 20 and 60um.

All of the Aquazol films were relatively soft compared to

gelatin and sturgeon glue. The Aquazol films were gouged rather than scratched by the pencils. The gelatin and sturgeon glue was scratched by a mid-hardness pencil (B and 2B). It appeared that there was a slight correlation between increasing molecular weight and increasing softness. This indicates that there may be a very small amount of residual water acting as a plasticizer. The 9:1 Aquazol 50/500 was slightly harder than the 1:1 ratio combination. Also, the films from Aquazol in IP/DW were slightly harder than those in only DW. By comparison, PVA appeared even softer than the Aquazols, with even the softest pencils causing troughs instead of scratches. This is most likely due to incomplete drying.

Handling and Application Procedures

A simple consolidation test was done to compare penetration and adhesion. The adhesives were applied by brush to an early 19th-century test painting with very thin flaking paint by brush, with and without a Mitka suction table. The adhesives were applied to 1 in. squares, allowed to dry, and cleared with DW. The edges of the squares were scribed with a scalpel and Permacel tape was rubbed on and pulled off, similarly to the tape test described above. (Figure 4). Two squares of 10% Aquazol 200 were also heated with a hot spatula or a hot air dryer before testing. These tests are very empirical due to the non-uniform nature of the paint. The adhesives tested were Aquazol 50, 200 and 500 (10% in DW), gelatin, sturgeon glue, and Aquazol 200 (10% in 9 parts IP to 1 part DW). Two drops of Triton-XL 80N were also added to 25 ml of gelatin and to 25 ml of Aquazol 200 in DW to see if the surfactant would aid in penetration. The adhesives and application methods were compared by the amount of paint remaining within the square relative to gelatin and sturgeon glue.

The application method turned out to be very important. When the adhesives were applied by brush to the surface of the painting, none of them (including gelatin and sturgeon glue) reached the underside of the paint layer. When the adhesives were applied with a brush using the Mitka suction table, it was found that all of adhesives penetrated better. Gelatin and sturgeon glue had the best adhesion. The Aquazols in IP/DW had better penetration and better adhesion than those in DW. Aquazol 200 in DW or IP/DW appeared to be the best adhesive for this paint, equivalent to gelatin and sturgeon glue. The Aquazol 500 in IP/DW also gave good results, but not as good as gelatin or sturgeon glue. The poor results of Aquazol 500 in DW is most likely due to its inability to penetrate beneath the paint layer. Also, the poor result of the Aquazol 50 in DW or IP/DW is most likely due to its weak strength relative to the Permacel tape used.

The addition of Triton to gelatin or Aquazol 200 in DW did not appear to change dramatically the amount of adhesion. The application of a hot spatula or hot air dryer to Aquazol 200 in DW after drying did appear to increase the adhesion slightly.

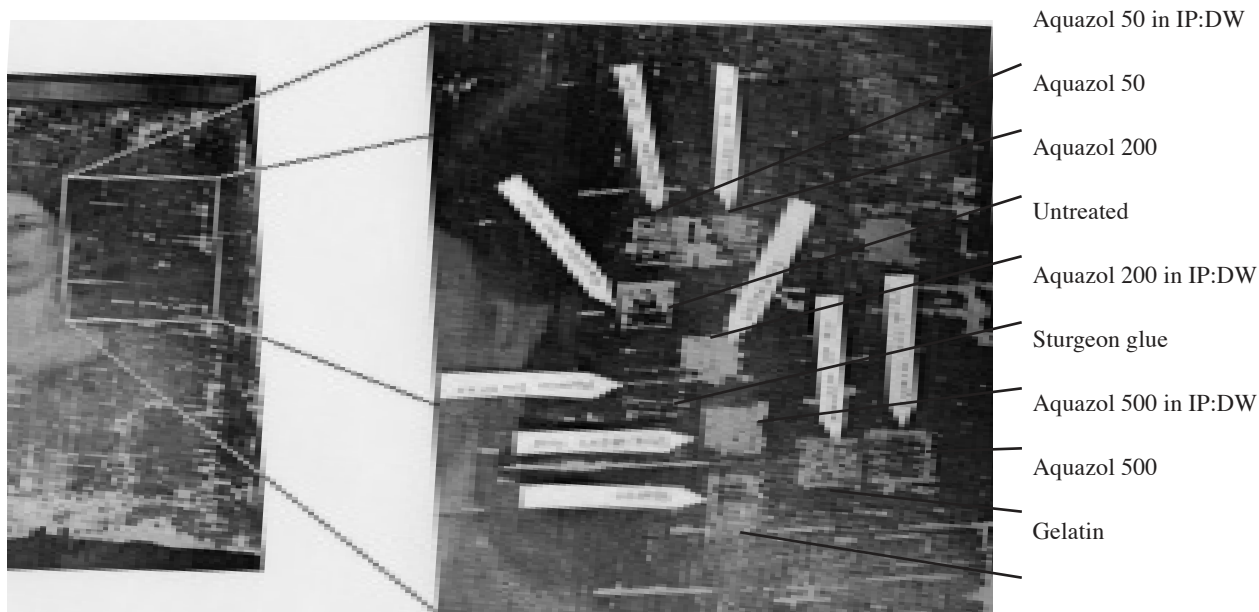


Figure 4. 19th c, *Portrait of a Woman*. Test areas: adhesive solution applied by brush with suction, after Tape Test.
Note: The sturgeon glue test area did not have adequate penetration.

Observations

A distinct odor was noted during the preparation of the Aquazol solutions which did not diminish very much over the course of this study (~6 weeks). Chiu et al. mention that the monomer 2-ethyl-2-oxazoline has a musky, amine-like odor. (1986). The manufacturer suggested that the odor may be due to some residual initiating agent, methyl tosylate also known as methyl 4-toluene sulphonate. Wolbers et. al. speculated that the hydrolysis product, p-toluene sulphonic acid could be present in Aquazol. The odor of the Aquazol solutions was not identified during this study.

The films made from Aquazol 200 and 500 in 9:1 IP: DW cast on slides or Mylar, had a lumpy appearance in raking light. This may be due to the sequestration of water-swollen resin after the rapid evaporation of the IP. The effect did not seem to affect the adhesive's properties in any way.

Discussion and Conclusion

Aquazol has potential as a consolidant, but, as usual, its use depends on the circumstances. The three MWTs give conservators a choice of adhesive strength by varying concentration, solvent, and application method. In addition the thermoplastic and thermostable nature of the resin gives a longer working time than sturgeon glue. It may not be as strong as PVA or BEVA 371, however, especially at the lower MWTs, it may have better penetration.

Penetration of the resins appears also to be assisted by either making the adhesive solution in a lower surface energy solvent, such as alcohols or ketones, or by adding a small amount of alcohol or ketone to an aqueous solution.

Increased penetration into the canvas and ground of the Aquazol solutions in IP: DW increased the adhesion of the resin to the test pieces. In addition, Aquazol solutions in IP: DW responded less dramatically at 75% and 84% RH than Aquazol solutions in DW alone. This appears to indicate that the solvent choice affects the rate of moisture uptake.

Within experimental error, the Aquazols were comparable to gelatin and sturgeon glue in their ability to adhere to the test samples. Sturgeon glue appeared to have the best adhesion and penetration while gelatin compared well with the Aquazols. As MWT increased, there was a slight decrease in adhesive strength of the Aquazols. This appears to be due to the ability of the Aquazol 50 to penetrate into the ground layer and to form a thinner film at a 10% concentration than Aquazol 500.

The aqueous Aquazol films dried at similar rates to gelatin and sturgeon glue, while solutions in IP: DW dried somewhat faster. Within the sensitivity of the balance used, there does not appear to be a prolonged drying time for Aquazol. However, the hardness and flexibility tests indicate that there may be a small amount of residual solvent after 10 days of drying. The Aquazols were very flexible and elastic while gelatin and sturgeon glue were brittle. Aquazols in water showed some distinction in flexibility (50>200>500) while the film from IP: DW solutions did not. This may be due to residual water, trapped within the polymer matrix after the rapid evaporation of the IP, acting as a plasticizer. Gelatin and sturgeon glue films also shrank substantially during drying while the Aquazols did not. The Aquazols were much less hard than the protein glues as well. Again,

Evaluation of the Use of Aquazol as an Adhesive in Paintings Conservation, continued

solvent choice affected the results: films from IP: DW solutions were slightly harder than those from aqueous solutions.

In concurrence with Wolbers et al, acetone was the fastest at removing a dried Aquazol film while water was the slowest. The slow swelling and solvation of the Aquazols by water is an indicator of its slower response time to high RH conditions compared to gelatin and sturgeon glue, which respond more rapidly.

From this work it appears that RH has to be considered when choosing Aquazol, especially the lower MWT resin. All of the adhesives tested, including Jade 403, take up moisture. However there are clear differences. Jade 403 takes up very little moisture, even at high RH, while gelatin and sturgeon's glue take up quite a bit more. Aquazols absorb the most moisture, however at a slower rate than the other adhesives. In addition, Aquazol in IP/DW absorbs less water than Aquazol in water. In general it appears that at RH levels at 75% and below, there is no significant decrease in adhesion of the Aquazols. However, at 84% and above, all of the Aquazols gel and do not appear to adhere to the substrate very well. These RH are high within the context of standard museum conditions, and it is unlikely that they would apply in most situations.

There is evidence from Lewis and Wolbers (1995) that Aquazol interacts with metal ions to form complexes, in a similar manner to proteins. The metal ions create bridges between and within the polymer chains to form large networks. Their results indicate that Aquazol-bound paints, or Aquazol as a consolidant in contact with paints with appreciable amounts of soluble metals, may be slower to respond to RH changes and re-solubilization in water than pure Aquazol films on tiles. This effect may be a critical factor in the success of Aquazol in a conservation treatment at elevated RH.

Ongoing Research

The odor of the Aquazol solutions was not identified. Further investigation is continuing through the generosity of the Los Angeles County Museum Conservation Center. In addition, sample films on glass slides are undergoing natural and artificial aging tests at LACMA where color and density are being monitored. The results of these continuing investigations will be reported in an upcoming *WAAC Newsletter*.

Acknowledgements

I would like to thank the following individuals for their contributions to this project: Betsy Court and Janet Ruggles from BACC; Victoria Blyth-Hill, Joe Fronek, Marco Leona, Laramie Hickey-Friedman, Kyu-Jin Ahn, Terri Schaffer, Virginia Rasmussen, Elma O'Donoghue, Elisabeth Schlegel, Sabrina Carli, and all of LACMA's Conservation Department; Richard Wolbers from University of Delaware, Winterthur; Mark Lewis from the Chrysler Museum; Chris Stavroudis, painting conservator in private practice; Odile Madden and Donna Williams from Williams Conservation Studio, Inc.; Susanne Friend from ConservArt Associates.

Bibliography

- Anonymous, "Two Aquazol 'Gesso' Recipes," in Technical Exchange of the *Western Associate of Art Conservation Newsletter*, vol. 21, no. 3, September 2000.
- Chiu, Thomas T.; Thill, Bruce P. and Fairchok, William J., "Poly(2-ethyl-2-oxazoline): A New Water- and Organic Soluble Adhesive," *American Chemical Society*, 1986, pp. 425-433.
- Friend, Susanne, "Aquazol: One Conservator's Empirical Evaluations," in Technical Exchange of the *Western Associate of Art Conservation Newsletter*, vol. 18, no. 2, May 1996.
- Lewis, Mark, *Aquazol: the Use of Poly-2-oxazoline as an inpainting medium*, Student Project, Winterthur Conservation Program, 1995.
- Lewis, Mark, Personal Communication, 2002.
- Magee, Catherine, "The Treatment of Severely Deteriorated Enamel," *ICOM Twelfth Triennial Meeting*, Lyon, 29 August – 3 September 1999, vol. 2, pp. 787-792.
- Polymer Chemistry Innovations, *Technical Information Sheet on Aquazol (Poly(2-ethyl-2-oxazoline))*, 1994.
- Polymer Chemistry Innovations, *Technical Information Sheet on Aquazol (Poly(2-ethyl-2-oxazoline))*, <http://www.polychemistry.com/Products/aquazol.html>, 2002.
- Wolbers, Richard C.; McGinn, Mary and Duerbeck, Deborah, "Poly(2-Ethyl-2-Oxazoline): A New Conservation Consolidant," in *Painted Wood: History and Conservation*, V. Dorge and F.C. Hault, Los Angeles: Getty Conservation Institute, 1994, pp. 514-517.

NOTE

Part two of this article will describe the results of a questionnaire given to a small group of conservators about their experiences with Aquazol. The author would be happy to have information from anyone who wishes to contribute. You can receive the questionnaire by emailing jarslanoglu@yahoo.com. If you would prefer just to send a few paragraphs, that would be welcomed as well.

Our play's chief aim
has been to take to bits
great propositions and their opposites.
See how they work,
and let them fight it out.

spoken by the Marquis de Sade in the film version
of the play *Marat/Sade* or *The Persecution and
Assassination of Jean-Paul Marat as Performed
by the Inmates of the Assylum of Charenton under
the Direction of the Marquis de Sade*, by Peter Weiss

Sampling Strategies and Testing Procedures for Identifying Arsenic and Mercury Pesticide Residues

by Tania Collas and Allyson Lazar

Background

Arsenic and mercury salts have historically had widespread use as pesticides on anthropological and natural collections. The collections at the Natural History Museum of Los Angeles County are unfortunately no exception. As a first step in assessing and mitigating the health risk of these pesticide residues for collection staff, Allyson Lazar and I set out to develop sampling strategies and testing protocols to determine the nature and extent of contamination in the collections. These tests were initially carried out on artifacts and specimens from the Anthropology and Ornithology collections because these collections were thought to have the greatest potential for contamination. Some of the testing procedures have since been applied to the Mineralogy and Botany collections and will soon be used to test History and other collections. The approach to assessing heavy metal contamination of collection material will be illustrated with a summary of the arsenic testing in the Ornithology collection and the arsenic and mercury testing in the Anthropology collection.

Arsenic Use in Ornithological Collections

The bird skin specimens investigated in this study were prepared by removing the skin and feathers whole from the bird body. The skull and feet were usually left in place within the skin. The inside of the skin was cleaned as much as possible, then the bird was stuffed with cotton wool wrapped around a skewer stick to give the bird skin a natural form. Not surprisingly, a specimen prepared in this manner is very attractive to insects. However, ornithologists from as far back as the late 18th century until as recently as the early 1970s took specific measures to prevent pest damage:

The inside of the skin is to be dusted with powdered white arsenic... It should never be omitted; and used with ordinary care, it offers no dangers to the health of the collector (Chapin, J.P. 1940, 6).

This quote was taken from a respected if somewhat outdated book for bird specimen preparation. And to the credit of the ornithologists who followed this recommendation, many specimens of immense research value have survived the decades undamaged by insects.

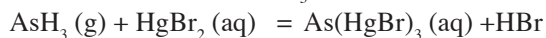
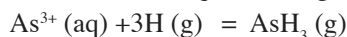
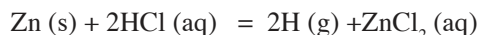
Although arsenic has long been known to be poisonous to humans, it is only within the past decade that the health risks posed by contaminated collections have become a frequent topic of research and discussion in our field, particularly with regard to natural and anthropological collections. While most conservators do not usually work with animal specimens, the directed sampling methodology and the testing procedures that we used for the ornithology specimens would apply to ethnographic or historic objects as well.

We used the EM Quant arsenic test kit for both the ornitho-

logical and anthropological collections.¹ The kit includes arsenic test strips, zinc powder, and hydrochloric acid. The arsenic test is essentially a variation on the classic Gutzeit test for arsenic in which the arsenic in the test solution reacts to form arsine gas, which then forms a colored compound upon reaction with a metallic salt. In this case, mercuric bromide is the indicator, and it turns a range of shades from pale yellow to brown indicating the presence of arsenic. These colors correlate to amounts of arsenic in milligrams per liter on the test strip container, but in fact are only semi-quantitative at best. They give a relative sense of the degree of contamination. The arsenic test needs to be carried out in a fume hood because the arsine gas evolved is very toxic.

EM Quant Test for Arsenic

Reactions (Odegaard et al. 2000, 40):



The EM Quant test provided easy-to-read results with a couple of minor modifications to the instructions. We used a smaller amount of water to dissolve the sample and let the samples dissolve overnight. We found that other microchemical tests for arsenic, including the Reinsch test, were more difficult to interpret than the EM Quant test. The sampling and testing procedures that we followed are listed below.

Sampling Procedure

1. Swab the specimens with cotton swabs moistened slightly with distilled water. Run the swabs all over the object/specimen in such a way as to replicate normal handling.



2. Snip the swab ends off into numbered test tubes.
3. Add 2.5 ml of distilled water and let samples sit over night.
4. Prepare a known arsenic sample in the same way. (We used arsenolite – arsenic trioxide – which sometimes needed heat from a small flame to help it go into solution.)
5. Prepare a known negative sample by adding 2.5 ml of distilled water to a test tube.

Testing Procedure

1. Decant the test tube contents into numbered reaction vials. (We used flat-bottomed 20 ml glass vials with flexible snap-on lids. We had cut slits in the lids to insert the test strips through.)
2. Insert test strips from the EM Quant test kit into the slits in the reaction vial lids. (We cut the test strips in half, lengthwise, to increase the number of testing rounds we would be able to perform.)
3. Be sure that the test strip is inserted in such a way that it will not actually touch the solution – it tests for the presence of arsine gas, not for arsenic in solution.
4. Add one scoop of zinc powder to one of the reaction vials (scoop and zinc are both provided in the kit).
5. Add ten drops of highly concentrated hydrochloric acid to the same reaction vial.
6. Quickly and tightly cap the reaction vial.
7. Swirl gently and let sit for 30 minutes.
8. Repeat steps 4 through the 7, one reaction vial at a time, for all of the reaction vials.
9. Results are often visible within a few minutes, but it is best to let the vials sit for the full 30 minutes.

Ornithology Collection Testing

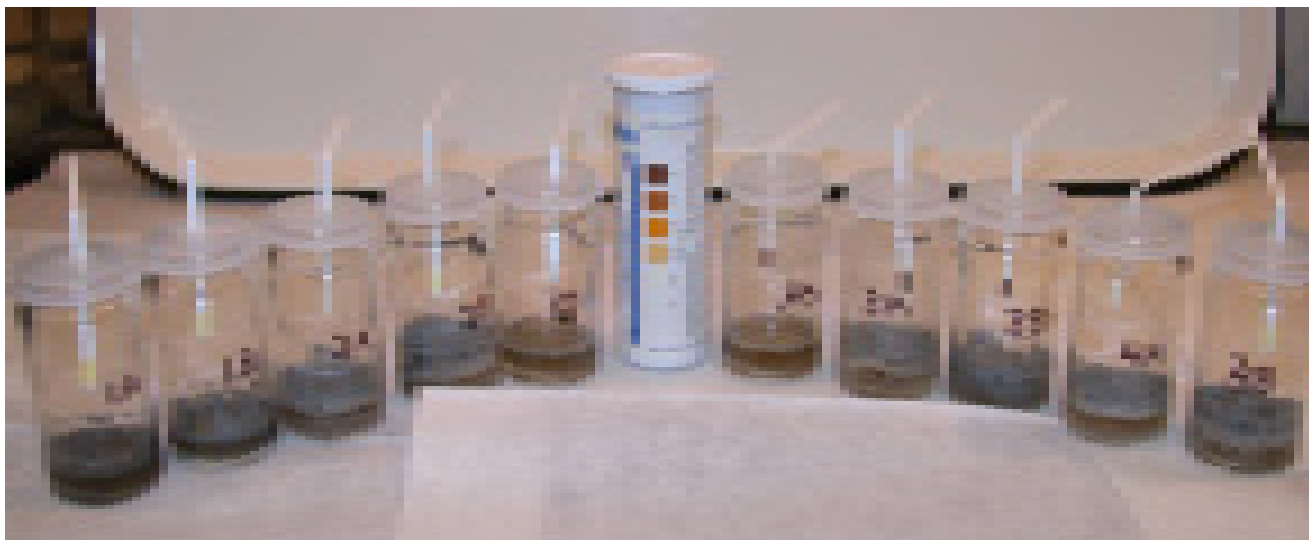
The first testing attempts within Ornithology confirmed that arsenic was present in the collection, especially in older specimens. But rather than testing each of the tens of thousands of bird skin specimens in the collection, we applied directed sampling to begin to define the scope of the arsenic contamination. With the help of the Ornithology collection manager, we defined categories of specimens within the collection to test: those dating from the late 19th century when arsenic was widely used, those prepared in the late 1950s to early 1970s when the use of arsenic was waning, and those collected and prepared in different parts of the world. The collection manager selected five birds of diverse sizes from each category.

The first group of birds to be tested was collected at the turn of the last century by Mr. Daggett, the first director of the Natural History Museum. Not surprisingly, these specimens showed consistently high levels of arsenic, evidenced by a dark brown color on the test strips. The use of arsenic does not waver over the span of twenty-three years during which the birds were collected.

The second group of birds to be tested was collected by a Mr. Partridge in 1959. The test results showed that most of the birds had detectable albeit low levels of arsenic that seem to indicate the limited and inconsistent use of the poison by this collector.

The third group of birds was collected in Kenya and Uganda during the 1960s. The point of testing these birds was to see if arsenic use persisted into recent times outside the U.S. These birds were negative or borderline positive, leaving the use of arsenic during their preparation in question. There was no correlation between the date of preparation and the presence of arsenic in these African birds.

Partly out of curiosity, we then took samples from specimens prepared at the Natural History Museum during the



1960s and early 1970s by the former collections manager, James Northern. These samples showed inconsistent low levels.

At the time of this testing, we also sampled the gloves worn by the collection manager after he had retrieved and handled the twenty specimens. They too tested positive for arsenic. At this point, we were beginning to suspect that cross contamination from heavily arsenic treated specimens, like the 19th-century ones, might be responsible for some of these borderline positive results we were getting for the late dating specimens. That is, the arsenic from the older birds was being physically transferred to the newer birds.

To test this hypothesis, we sampled five birds prepared by the current collections manager, Kimball Garrett, who never used arsenic to prepare a specimen. We chose two pairs of specimens of the same species, one older than the other. For example, two hawks that were tested had been stored in the same drawer, but one dated from 1991 and one dated from 2000. To investigate further the likelihood of cross contamination, we also swabbed the surface of a drawer liner recently placed in a cabinet with older specimens.

The high proportion of positive results obtained from specimens never treated with arsenic was somewhat surprising. The drawer liner also tested positive. The older specimens tended to have slightly higher arsenic levels than the newer specimens. Although the testing will continue, at this point, we are convinced that cross contamination from older, heavily treated specimens is responsible for the contamination of a large percentage of the museum's bird skin collection.

Anthropology Collection Testing

The first step in testing the Anthropology collections was determining which types of objects were appropriate for testing. Unlike the Ornithology collections, which consist of one type of specimen, the Anthropology collections are composed of a variety of objects made from a number of different materials, both organic and inorganic. Traditionally, only artifacts made from organic materials were treated with heavy metals. Using known dates for use of heavy metals and pesticides from the literature, we established a set of criteria for determining types of objects to test. Once the criteria were determined, to begin testing we selected five artifacts that fit each type of criteria. The criteria were as follows:

- Organic material with strange residues
The residues were generally white or translucent and powdery or crystalline and were discovered on leather, hide, buckskin, and wood objects from all over the world.
- Organic material in suspiciously good shape collected prior to 1950
Due to the age of objects collected prior to 1950, it is assumed that there would be some indication of pest damage, unless the objects had been treated with a pesticide

or pest repellent. Also, objects collected prior to 1950 are more likely to have been treated with heavy metals, according to the literature.

- Organic material collected prior to 1950 from very large collections
Very large collections are suspect because the more serious collectors would have been more likely to have taken steps to protect and preserve their objects, such as treating them with heavy metal pesticides.
- Organic material recommended for testing by the curator based on institutional memory
One or two specific objects were recommended for testing by the curator because she remembered a former staff member mentioning that those objects had been treated.
- Organic materials used in public programming
We decided to test the Egyptian archaeological materials brought into the country in the 1920s because they were often requested for use in presentations to children. Using the EM Quant test for arsenic, we discovered that unfortunately some of these objects had been treated with arsenic and were therefore not safe for use in public programming.

We will continue testing for arsenic in the Anthropology collection according to the criteria listed above to determine the scope of the contamination.

In addition to the arsenic testing, we have also begun testing for mercury in the Anthropological collection. When a type of volcanic glass known as Pele's hair² and a piece of African rope, both housed in Riker mounts, were returned to the Anthropology Department from the Educational Lending Service, we noticed that they were labeled as having been treated with mercuric chloride. We initially tested these objects using the diphenylcarbazone test for mercury (Odegaard et al. 2000, 72) as a way of verifying our testing methods for mercury. Perplexingly, both of these objects tested negative.

After a number of rounds of testing, we learned that the diphenylcarbazone test worked very well for detecting the presence of mercuric oxide, but not mercuric chloride. Acids, which are necessary to break the bonds between the mercury and the chlorine, and chlorides, which are already present in the salt, both interfere with the test. However, when we tried a new, as-of-yet unpublished test developed by Catharine Hawks and Kathryn Makos (Stavroudis, C. 2003, 10), these artifacts did test positive for mercury vapor built up within their storage container.

This test for mercury vapor is so simple to use and interpret that we have been able to start mercury testing in the Botany and Mineralogy collections in addition to Anthropology. So far, we have found that certain older cabinets in the Botany collection, which previously housed vascular plant specimens treated with mercuric chloride,

still contain some mercury residue. Fortunately, the former herbarium cabinets that are currently used to store some Anthropological collections do not.

Within the Mineralogy collection, our concern was not whether mercury was present, since we knew there were many mercury mineral specimens, but whether the specimens were giving off mercury vapor. We tested cabinets containing elemental mercury, mercury salts, and mercury sulfides. Unfortunately, all of the mercury specimen cabinets tested contained detectable levels of vapor, even where the specimens were stored in closed plastic boxes or polyethylene zip-lock bags. Some specimen drawers were then covered with Pacific Silver Cloth as a potential mercury vapor scavenger (Stavroudis, C. 2003, 11), but retesting showed no difference in results.

Thus far, we have not been able to determine whether heavy metal contamination is present in the museum collections, but this is just the first step.

Next Steps

The heavy metal testing thus far has been aimed at determining the extent of contamination in the museum's collections. But the overall goal is to begin the process of assessing the health risk to collection staff. While these tests can be used to detect contaminated objects, they cannot be used to determine if the artifacts or specimens are a health hazard. This can only be accomplished by testing the exposure of collection staff to arsenic, mercury, and other pesticides. Devices for testing worker exposure to hazardous substances include air collection tubes, glove and work surface wipe sampling, and urine tests. To accomplish this exposure testing, we will need to bring in an industrial hygienist or other occupational health professional qualified to address staff medical concerns.

While we hope that the health risks of handling the collection are minimal, we want to be sure that adequate safety measures are taken. This may involve providing personal protective gear to collection staff, such as nitrile gloves and HEPA filter respirators, or it might mean modifying the ventilation system in storage. Ornithology collection staff have expressed their fear that the results of arsenic testing will prompt the purging of the contaminated specimens from the collection. This would mean a terrible loss to ornithological research. But we are confident that better solutions to the heavy metal contamination problem will be available.

1. Before settling on the EM Quant test for arsenic, we also tried two other spot tests for heavy metals, the Reinsch and capillary tube tests, both of which we determined to be inappropriate for our purposes.

2. Pele's hair is named for the Hawaiian goddess of volcanoes and was probably treated with mercuric chloride because it is called hair and it looks like organic, rather than inorganic matter.

Acknowledgements

We are grateful to Chris Stavroudis for his useful advice on heavy metal testing techniques and safety precautions. We would also like to thank Catharine Hawks and Kathryn Makos for their work developing such a practical test for mercury vapor. We are looking forward to the forthcoming publication.

References

Chapin, J. P. The Preparation of Birds for Study. *Guide Leaflet of the American Museum of Natural History* 58. 1940.

Odegaard, N., S. Carroll, and W. S. Zimmt. *Material Characterization Tests for Objects of Art and Archaeology*, London: Archetype Publications. 2000.

Stavroudis, C. "Health and Safety: Mercury, the Other Heavy Metal." *WAAC Newsletter* 25:1. 2003.

Sources for Materials Described

EM Quant Arsenic Test Strips (100/pack) (Cat. No. M100261) includes arsenic test strips, zinc powder, and hydrochloric acid. Available from Fisher Scientific, tel: (800) 766-7000, website: www.fishersci.com.

Diphenylcarbazone
Tri-Ess Sciences Inc., 1020 W. Chestnut St., Burbank, CA 91506, tel: (818) 848-7838, website: www.tri-esssciences.com. (Also available from most chemical suppliers).

ADDITIONAL REFERENCE MATERIAL

Sources for the History and Background of Pesticide Use in Collections

Goldberg, Lisa. "A History of Pest Control Measures in the Anthropology Collections, National Museum of Natural History, Smithsonian Institution." *Journal of the American Institute for Conservation* (Spring 1996) 35: 23-43.

Hawks, Catherine. "Historical Survey of the Sources of Contamination of Ethnographic Materials in Museum Collections." *Collection Forum* (2001) 16(1-2): 2-11.

Hawks, Catherine and Kathryn Makos. "Inherent and Acquired Hazards in Museum Objects: Implications for Care and Use of Collections." *Cultural Resource Management* (2000) 5:31-37.

Hawks, Catherine and Stephen Williams. "Arsenic in Natural History Collections." *Leather Conservation News* (Spring 1996) 2(2): 1-4.

Sources for Chemical Analysis and Microtesting

Feigl, Fritz and Vinzenz Anger. *Spot Tests in Inorganic Analysis*. Amsterdam: Elsevier. 1972.

Found, Christine and Kate Helwig. "The Reliability of Spot Tests for the Detection of Arsenic and Mercury in Natural History Collections: A Case Study." *Collection Forum* (1995) 11(1): 6-15.

Grande, Gregory, Andrea Rogers and Louis Ling. "Urine Spot Test as Guide to Treatment in Acute Pentavalent Arsenic Ingestion." *Vet Hum Toxicology* (February 1987) 29(1).

Henry, Erica. "The Merckoquant 10026 Arsenic Test for Natural History Collections." *Western Association of Art Conservation Newsletter* (January 1996) 18(1): 19.

Hogness, T. R. *An Introduction to Qualitative Analysis*. New York: Henry Holt and Company. 276-277.

Meites, Louis, editor. *Handbook of Analytical Chemistry*. New York: McGraw-Hill Book Company, Inc. 13-272-13-273.

Odegaard, Nancy, Scott Carroll, and W.S. Zimmt. "Test for Mercury Salts Using Diphenylcarbazone." *Material Characterization Tests for Objects of Art and Archaeology*. 72-73

Odegaard, Nancy, Scott Carroll, and W.S. Zimmt. "Test for Arsenic Compounds Using Spot-Test Papers." *Material Characterization Tests for Objects of Art and Archaeology*. 40-41.

Palmer, Pete. "A Review of Analytical Methods for the Determination of Mercury, Arsenic, and Pesticide Residues on Museum Objects." *Collection Forum* (2001) 16(1-2): 25-41.

Partington, J. R. *A Text-Book of Inorganic Chemistry*. London: MacMillan and Co., Limited. 1950. 858-859.

Purewall, Victoria. "The Identification of Four Persistent and Hazardous Residues Present on Historic Plant Collections Housed within the National Museum and Galleries of Wales." *Collection Forum* (2001) 16(1-2): 77-86.

Qualitative Testing and Inorganic Chemistry. 262-263.

Sirois, P. Jane. "The Analysis of Museum Objects for the Presence of Arsenic and Mercury: Non-Destructive Analysis and Sample Analysis." *Collection Forum* (2001) 16(1-2): 65-75.

Svehla, G. *Vogel's Qualitative Inorganic Analysis*. Essex, England: Longman. 1996.

Sources on What to Do

Kaminitz, Marian. "A Review of Methods to Mitigate the Risks from Use of Contaminated Objects." *Collection Forum* (2001) 17(1-2): 122-127.

Nason, James. "Dangerous Collections! Pesticides on Museum Materials." *History News* (Fall 2001) 56(3): 21-25.

Rossol, Monona and Wendy Jessup. "Handling Treated Objects." *Museum Management and Curatorship* (1996) 15(2): 158.

Sources on General Overviews of the Problem

Knapp, Anthony. "Arsenic Health and Safety Update." *Conserve O Gram* (September 2000) 2/3: 1-4.

Lazar, Allyson. "Contaminated Collections: The Problem of Native American Objects and Past Museum Practices." *Curcom Update* (November 2001): 6-10.

Sources on Case Studies

Caldararo, Niccolo, Lee Davis, David Hostler, Shawn Kane and Peter Palmer. "Pesticide Testing of Hoopa Repatriated Regalia: Taking the Samples." *Collection Forum* 2001 16(1-2): 55-62.

Hostler, David, Shawn Kane, and Lee Davis. "The Hoopa Tribal Museum's Experience with Chemical Contamination of Repatriated Materials." *Collection Forum* (2001) 16(1-2): 54.

Johnson, Jessica. "Masked Hazard." *Common Ground: Archeology and Ethnography in the Public Interest* (Fall 1999): 26-31.

Landry, Linda. "Case Study: Nineteen Objects Tested for Arsenic Residue." <http://www.nmnh.si.edu/anthro/ConservL/ICOMnews/N18/icom1098.htm>.

Odegaard, Nancy and Alyce Sadongei. "The Issue of Pesticides on Native American Cultural Objects: A Report on Conservation and Education Activities at University of Arizona." *Collection Forum* (2001) 16(1-2): 12-18.

Peabody Museum Harvard University. "Use or Probable Use of Chemicals in the Peabody Museum / Harvard University for Preservation or Pest Control Purposes." July 1998.

Phoebe A. Hearst Museum of Anthropology. "Use of Chemicals for Preservation or Pest Control." January 2001.

Schmidt, Ole. "Insecticide Contamination at the National Museum of Denmark: A Case Study." *Collection Forum* (2001) 16(1-2): 92-95.

Reverberations of September 11

The world of risk management and insurance is still experiencing the aftershocks of the losses of 9/11/01. Museum exhibitions, major loans, art in transit, and insurance policies have all been affected by the tragedy of terrorist attack. The world of risk management has an entirely new arena of risk options to address. The immediate effects of 9/11 on the transport of traveling exhibitions have affected art shipments and the role of couriers under heightened national security for the long term. The insurance world has been reeling from the effects of the massive private losses incurred. Museums and collectors have been affected by the difficulty of finding terrorism risk coverage at higher premiums. Changes in U.S. Indemnity coverage and a resolution by the Association of Art Museum Directors have tried to address the issue of terrorism loss coverage, while an important bill addressing the commercial insurance market has recently been enacted.

The Initial Chaos

In the early morning hours of 9/11/01 the Seattle Art Museum staff scrambled to cope with the shock of the unfolding news and a fear of the unknown for the West Coast. We felt a particular vulnerability in Seattle, having been affected by the cancellation of Seattle's New Year 2000 celebration, prompted by the initial Al Qaeda terrorist being caught at the Washington state border in Anacortes. Our main museum is located in the heart of Seattle's high-rise financial district, and those buildings were being evacuated on the morning of September 11, as a precaution, while air space was being shut down. We had to deal with the immediate chaos in the shipping world, which affected our museum for a U.S. exhibit tour we had organized from China and an exhibit we were preparing to send to Japan in October 2001.

Our first reaction, beyond the immediate safety of our staff and building, was a great concern that our indemnified Chinese bronze exhibition from Sichuan province might not be able to travel to New York, as planned in the summer of 2002. On September 11, the exhibit had just been unpacked at the Kimball Art Museum, Fort Worth. We were unsure in those first few days whether our Chinese colleagues would panic and recall the exhibition to China. My senior associate registrar had been scheduled to fly back to Seattle from Fort Worth on September 11, but was evacuated from the Dallas airport and stranded for an additional five days. Fortunately, our Chinese colleagues did not pull the show and, in fact, their couriers continued with plans to visit New York as tourists, even as the anthrax scare unfolded.

An exhibition of Japanese paintings we were organizing for a year's tour in Japan seemed, at first, in danger of not being able to travel. It was scheduled to depart for Tokyo within one month of September 11. We found conflicting information from the airfreight offices, which initially said *no couriers would be allowed on cargo planes under any circumstances*. Two weeks later the restriction was amended so that we could ship with a courier, but only through a "known" shipper. It was an example of the new world order to realize that the Seattle Art Museum would not be considered a "known" shipper on our own, after decades of airfreight shipping to

Japan! Fortunately, our colleagues among commercial fine art shippers had the clearance needed. I was the courier for our Tokyo shipment, and I was grateful for our long-established relationship with special detectives of the Port of Seattle Police, since I was not allowed to watch the crates load into the plane under the heightened restrictions. It was comforting to know that two officers that we had worked with for years would be watching the handling planeside.

The subsequent anthrax scare affected our courier program as well, causing one of our couriers to back out of a trip to New York during the anthrax letter threats. It also caused us to look more closely at our foreign liability insurance coverage for staff members who make business trips abroad, since federally mandated Workers Compensation coverage and normal domestic insurance policies are limited to claims brought within the U.S. and Canada. I would highly recommend museums and private conservators to check out this kind of coverage if your staff travels outside of the U.S.

The lasting affects of 9/11 on the high-value art shipping world remain. We must work with art handling companies who are recognized shippers, we are limited in our ability to observe the crates in transit to the planes, and we make sure our couriers have emergency methods to contact us if they are stranded overseas. Since the advent of frequent elevated threats against Americans overseas, we have also decided to provide an international cell phone or Blackberry wireless to every courier.

9/11 Art Losses

The loss of thousands of works of art from the World Trade Center towers alone is now, sadly, legendary. From the Cantor Fitzgerald collection of Rodin bronzes to the monumental Calder that lay twisted beneath the tower wreckage, the art world has lost irreplaceable objects. Thirty-eight museums in lower Manhattan were also affected by the blast, either by damage or cleanup from debris.

Art recovery near the World Trade Center was fraught with unforeseen challenges. One of the best overviews of the enormous task is found in the International Foundation for Art Research's February 2002 symposium on "Art Loss, Damage and Repercussions," which can be found online at www.ifar.org. Symposium speaker Gregory Smith, an insurance adjuster, describes the complexities of getting art out of Ground Zero restricted areas.

It took three months to get a \$2M stainless steel Roy Lichtenstein sculpture out from the plaza in front of Tower Two, because the owners were unable to find a rigger who could get a security pass from the FBI and Office of Emergency Management to enter Ground Zero. According to Smith's report, the FBI used the sculpture as a bulletin board during the ensuing three months, and a Bobcat lift used in recovery was temporarily parked on it. Smith notes that it took four hours for truckers, who had finally received a security pass, just to get through all the checkpoints at Ground Zero to pick up the work.

Fine Arts Insurance Impact

The massive losses of 9/11, particularly in New York, have changed the world of insurance underwriting dramatically for the foreseeable future. The insurance world is still reeling from the payout on property losses (which can *never* be compared with the tragic human toll). September 11, 2001 was the biggest insured catastrophe ever, with an estimate of \$40.2 billion in insured losses. This is in comparison to the total losses caused by Hurricane Andrew in 1992 at \$19.6 billion, as the former most costly disaster in U.S. history. The total estimate for 9/11 includes such claims as:

- \$2.7 billion for life insurance claims
- \$3.5 billion for property claims for WTC buildings
- \$6.0 billion for damage to property
- \$10 billion in liability claims
- \$11 billion in claims for business interruption
- \$2.0 billion in event cancellation claims
- \$500 million in hull claims for four commercial planes
- \$3.5 billion for aviation liability.

(Thanks to Teresa Cousins of Huntington T. Block Insurance for these statistics.)

Insurance for business interruption and loss of revenue has been newly highlighted for museums and other arts institutions, in light of the extended closures forced on institutions of lower Manhattan by the physical destruction and the psychological blow to tourism. Of Manhattan museums polled by the Heritage Emergency National Task Force after 9/11, 78% experienced extended closures and disruption of communications, some for up to four months.

The massive property loss has inevitably affected the fine arts insurance world. Art losses from the 9/11 terrorist attacks were covered under the policies existing at the time because terrorist acts were not part of the standard "acts of war" exclusions on insurance policies. Insurance underwriters moved quickly, however, to exclude terrorist acts coverage from policies post 9/11, causing great consternation among museums for pending exhibition loans from foreign countries and from nervous private lenders. The Dead Sea Scrolls exhibition, originally bound for the Salt Lake Olympic Games, was unable to find an underwriter who would take on such a high profile risk and had to be cancelled for the Winter Games venue following 9/11.

Great credit is due to the Association of Art Museum Directors who quickly passed a resolution that members would not require terrorism coverage for loans between member museums. This did not address private lenders' fears, however, and some did refuse to lend. For foreign loans, U.S. museums may apply to the Federal Indemnity Insurance Program administered by the NEA. Since April 1, 2002 terrorism is now included as a covered risk under the Certificate of Indemnity. The revised coverage also, surprisingly, includes coverage for works in pastel if they are lost due to terrorist acts, even though they are normally excluded from Indemnity coverage due to inherent vice.

The NEA saw more large museums applying for Indemnity since 9/11, specifically because commercial terrorism coverage was unavailable, or prohibitively expensive. This has

put tremendous pressure on the Indemnity program. The April 2002 allocation of funds for the program nearly exhausted the \$5 billion ceiling of coverage mandated by Congress, even before the October 2002 round of applications were due. Representative Betty McCollum, D-Minn., has introduced legislation in March 2003 to raise the Indemnity total coverage to \$8 billion, with an increase of the limit per exhibition from \$500 million to \$750 million. Museum staff and conservators should lobby their representatives to support this important legislation.

The Terrorism Risk Insurance Act (H.B. 3210) finally passed in November 2002, after languishing between the House and Senate for over a year. This law provides temporary federal support (until 2005) to the commercial insurance world, which will share the burden of massive losses after a multi-billion dollar deductible is met. The high deductible makes it less useful to most museums. However, passage of the law has now made underwriters of fine arts insurance policies reinstate terrorist coverage. Immediately after 9/11 the Seattle Art Museum was told that we would not be able to continue terrorism coverage when our art policy renewed in 2003. We are now being offered a policy that will include up to \$50 million in terrorism coverage, albeit with a significant increase in premium cost.

What Lies in the Future?

We have become accustomed to the new restrictions of art transport, have agreed to abide by the AAMD resolution not requiring terrorism coverage of fellow U.S. museums, have reinstated terrorism coverage in our fine arts policies at greater cost, and have had to reconsider international or private loans depending on our budget capacity. What more can we do, when the dire predictions of future domestic attacks are beyond our control?

We can do something about the things we *do* control. We can continue to strengthen the foundation of our institutions' risk management by reviewing and enhancing our emergency preparedness. The Office of Homeland Security may have scared the general public with its duct tape alerts, but the emphasis on having a *reasonable* emergency plan is one we all should incorporate. **Conservators are the leaders for disaster preparedness for museums and private clients. After 9/11 there should be NO museum without an emergency response plan!** In a survey conducted by the Heritage Emergency National Task Force, only 44% of the museums of lower Manhattan had written emergency response plans or staff emergency training prior to 9/11.

All of our emergency plans should include 1) procedures for closing outside air intakes and vents; 2) plans for triage removal of objects within the limits of human safety; 3) guidelines for protection of art and staff against asbestos residue and toxic fire smoke; 4) improved security systems and procedures, including establishing close working relationships with your local law enforcement teams; 5) regular practice of evacuation drills, including appropriate bomb/radiological/biological scare response. We should be analyzing this important component of risk management even more than we are examining our insurance coverage.

Conference Review

Arthur M. Sackler Colloquia Scientific Examination of Art: Modern Techniques in Conserva- tion and Analysis

An interdisciplinary colloquium, "Scientific Examination of Art: Modern Techniques in Conservation and Analysis," was held at the National Academy of Sciences in Washington, DC, March 19-21, 2003. The colloquium was organized by Barbara Berrie, E. René de la Rie, Janis Tomlinson, John Winter, and members of the National Academy of Sciences. The over 130 participants included conservators and scientists from the US, Canada, and Europe.

The colloquium provided a vital opportunity for scientists and conservators to discuss novel and emerging methodologies and techniques used in the examination of art objects.

Speakers included Roy Bearns, Barbara Berrie, Jaap Boon, Robin Clark, John Delaney, Janet Douglas, Molly Ann Faries, Melanie Gifford, Tom Learner, Carol Mancusi-Ungaro, Ralph Mitchell, Richard Newman, James Reilly, E. René de la Rie, Michael Schilling, Maurizio Seracini, Joyce Hill Stoner, Pamela Vandiver, Timothy Whalen, Paul Whitmore, and John Winter.

The tone for the meeting was set wonderfully by Maurizio Seracini, who gave the opening lecture. Mr. Seracini described his use of scientific techniques appropriated from other fields, such as medical imaging, in the examination of artworks by Leonardo da Vinci. Mr. Seracini's examination of Leonardo's *Adoration* has shown that only the gray-green underdrawing is by Leonardo's own hand.

His talk also included discussion of Leonardo's lost masterpiece, *The Battle of Anghiari*, which Seracini believes still exists in the Palazzo Vecchio behind walls built by Vasari. Needless to say, the talk was quite thought provoking and was the object of much discussion at the reception.

The talks were a well orchestrated mixture of overviews of conservation science as it exists in the various conservation disciplines and case studies. The first

day was devoted to more comprehensive talks, which looked at the state of scientific examination of artworks in various disciplines; while the second day focused on specific applications of several emerging scientific techniques. Several of the overviews included discussions of the goals and aims of scientific research. John Winter gave a brief history of the field of "technical art history," a.k.a. "conservation science," which has its roots in the field of archeology.

A number of talks focused on non-destructive techniques, with a particular emphasis on various types of spectroscopy. Paul Whitmore described the construction and practical applications of a spectroscopic device that is able to read the spectrum of a small sample area every few seconds while simultaneously exposing the same area to illumination. This makes it possible to observe pigment changes and fading. It has been used primarily for paper artifacts.

Molly Faries described her research into imaging in the infrared spectrum. She compared the various types of IR imaging devices currently available, including the newer Platinum Silicide technology, which was developed for military application.

Roy Berns discussed Spectral Imaging as an analytical tool (website www.Art-SI.org). The result is the creation of a high resolution spectral image where each pixel location has a spectrum associated with it. Possible applications include pigment identification.

On a somewhat similar note, John Delaney detailed the use of Infrared Multi-spectral Imaging (MSI) as an analytical tool. MSI involves imaging using both visible and infrared spectral data. This allows identification of pigments based on their "unique signatures," and the creation of ratio maps, which show spatially where each specific pigment has been applied by the artist.

Several of the talks focused on the use of various analytical techniques to identify pigments present in works of art. Barbara Berrie detailed the reexamination of samples taken from several paintings by Lorenzo Lotto prompted by the recent

discovery of a 16th-century Color Seller's inventory in Venice. Using SEM-EDX and X-ray Powder Diffraction Lotto's use of "glassy" (silicone containing) pigments was revealed. These pigments derive from the glass and dye industries.

Robin Clark described the recent adaptation of Raman Microscopy coupled with a CCD detector to identify pigments. This non-destructive technique has been used on medieval manuscripts and other small artworks. Mr. Clark also discussed the use of LIBS (laser-induced breakdown spectroscopy), which uses a pulsed laser to produce an emission spectrum of the materials present on surface which, in turn, is used to determine the elements present.

Melanie Gifford described the use of Polarized Light Microscopy (PLM), IR, and cross-section analysis as part of a technical study of Matthias Grünewald. Findings indicate that although Grünewald used a conventional 16th-century palette, he was able to achieve many refined color effects through complex color mixtures and layering techniques.

James Riley described several innovative examination techniques, such as the use of RIT edge reflection analysis, which reveals the texture of photo paper at the boundary of the light/dark edge and is used not only to aid in identification but also to track changes from treatment. Mr. Riley also mentioned the ongoing creation of a library of spectra of binders and overcoats found on photographs at GCI.

A number of talks chose to focus on the examination of a specific group of artifacts.

Richard Newman discussed the use of techniques from the field of geology, such as neutron activation analysis and laser ablation-ICP spectrometry, to study stone sculpture. Analysis of rock composition has proven useful for provenance research, while the study of alteration layers has proven useful for authentication.

Pam Vandiver described new research directions in the study of ancient ceramic and glass technologies that focus on as-

certaining technological practices. Michael Schilling discussed the use of GC-MS to identify organic binding media present in artworks by Jacob Lawrence and Willem de Kooning. This research has provided new insights into the painting practices of both artists.

Janet Douglas discussed the use of FTIR and XRD to determine geological sources of various jade artifacts. She also emphasized the need to study working methods.

Two of the talks took a reflective, philosophical tact. Joyce Hill Stoner gave a comprehensive history of science in the field of art conservation, divided into 2 parts: "progress" (1925-1975) and "process" (post 1975.) She noted how advances in scientific examination and our resulting understanding of artifacts have changed the goals and attitudes of the conservation profession.

Carol Mancusi-Ungaro discussed the importance of materiality – the idea that process and materials are as important as meaning in understanding a work of art. She noted that scientific examination can help conservators understand how a painting does and should look in some cases helping to dispel myths about the artist's technique.

Several talks focused on materials analysis with an emphasis on aging and/or deterioration mechanisms. Ralph Mitchell described the use of micro-computer assisted tomography to look at penetration of microorganisms into stone as part of investigations into biodeterioration of archeological sites. This permits analysis of the mechanisms of biodeterioration of both the stone and consolidating polymers and has many important implications for long-term preservation.

Tom Learner discussed his ongoing research into 20th-century paints using PyGCMS and FTIR to identify and characterize media. He also discussed ongoing research into aging properties and effects of surface cleaning and other conservation treatments of acrylic paint media. These investigations will look at swelling and leaching of acrylic films from exposure to typical conservation solvents such as the removal of surfac-

New Publications

The Use of Oxygen-Free Environments in the Control of Museum Insect Pests

By Shin Maekawa and Kerstin Elert.
The Getty Conservation Institute. J. Paul Getty Trust, Los Angeles, 2003. ISBN0-89236-693-1. 157 pp. Paperback. \$60.

This book arrived just as the *Newsletter* was going to press, and there was no time to commission a proper review.

However, even a brief skim reveals that this is a necessary reference. Brought to you by GCI, the folks who have done this best and longest, it appears to include everything one needs to know, from insect information to the use of oxygen absorbers and nitrogen in small and large scale applications.

It has numerous excellent photographs and illustrations, exhaustive references, and a comprehensive list of all suppliers of the necessary materials. While not cheap, it will make up its cost in saved time. It also comes with a DVD containing the text.

tants present on the surface of acrylic films through routine surface cleaning.

Jaap Boon discussed his ongoing research, in collaboration with MOLART, investigating the aging of oil paint films and specifically the formation of metal soaps, now thought to be a part of the natural aging of oil paint films. In some cases these metal soaps form aggregates which are thought to underlie effluorescence and ground staining.

To close, the reviewer's appreciation is extended to the National Academy of Sciences and the colloquium's organizers. The conference was very well organized, and the talks were well chosen to represent a broad spectrum of materials and analytical techniques. The conference highlighted the need for continued collaboration between scientists and conservators and illustrated perfectly the rich discoveries such collaborations yield. (Colloquium proceedings are published in the *Proceedings of the National Academy of Sciences* (PNAS).)

Charlotte Seifen Ameringer

Membership

Chris Stavroudis
Membership Secretary

WAAC welcomes the following new members. New member information is printed in the *2003 WAAC Membership Directory* and the new members are listed here by name only.

Academy of Motion Pictures, Arts and Sciences; Monica Berry; Suki Fredericks; Marcel Garba; George Eastman House Conservation Library; Melissa J. Huber; Suyeon Kim; Stephanie Lamson; Jo Anne Martinez-Kilgore; Christopher McAdams; Teresa Moreno; Sylvie Pé-nichon; RSTVENNOJ BIBLIOTEKI (RUSSIA); Elisabeth Schlegel; and Christopher A. Wicks.

Please note that the following members have an address change, phone number change, and/or email change that appears in the *2003 Membership Directory*:

Helen Alten; M. Randall (Randy) Ash; Asian Art Museum; Sanchita Balachandran; Balboa Art Conservation Center; Brynn Bender; James Bernstein; Carmen F. Bria, Jr.; Brooklyn Museum of Art; Irena Calinescu; John T. Campbell; Vicki Cassman; Matthew Crawford; James A. Cutrone; Julia Day; Simonette dela Torre; Felicity Devlin; Laura Downey; Isabelle Duvernois; Peter Eastman; Beth M. Edelstein; Susan Filter; Lisa Forman; Diane Fullick; Georgia Division of Archives; Martha Simpson Grant; James Hascall; Mary Elizabeth Haude; Walter Henry; Jane K. Hutchins; Celia Keilty; Janice M. Kollar; Carol Lavoie; Jane S. Long; Elizabeth Mehlin; Consuela Metzger; Denise Krieger Migdail; Natasa Morovic; National Gallery of Art, Department of Paintings Conservation; Michaela Z. Negro; Julie Parker; Karen L. Pavelka; Natasha Rebrov; Barbara O. Roberts; Thornton Rockwell; Sally Roggia; Anne Rosenthal; Joanna Rowntree; Maureen Russell; Victoria Montana Ryan; Richardson Memorial Library; Joan Samuels Fabian; D. Hays Shoop; Yong Situ; Katie Taylor; Gregory Thomas; Mina Gregory Thompson; Julie Trospen; Mark E. Van Gelder; Camilla Van Vooren; Rosamond Westmoreland; George F. Wight; Donna Williams; and John Williams.

Jobs

The Los Angeles County Museum of Art Conservation Center

ASSISTANT/ASSOCIATE CONSERVATION SCIENTIST

The Conservation Center of LACMA is seeking a full-time Assistant/Associate Conservation Scientist. The Museum's global collections cover a wide range from antiquity to modern and contemporary art, offering a challenging work environment.

LACMA's Conservation Research Laboratory is a modern analytical facility equipped for Microscopy, FTIR, Raman, GC-MS, UV-Vis, SEM, XRF, XRD, and Thermoluminescence analyses. Collaborative research with curators, conservators, and laboratory staff for research on the applications of lasers in conservation is encouraged.

The incumbent's primary responsibility will be to assist the Senior Conservation Scientist in the daily activities of the research laboratory. The successful candidate will be involved in the study of works of art and artists' and conservators' materials, to understand and preserve the Museum's collection. The incumbent's duties will include contributing to laboratory administration and analytical equipment maintenance.

Minimum requirement: A graduate degree in chemistry/physical sciences, or equivalent education and professional experience. Previous experience in an art museum conservation science laboratory is desirable, but not required. Must possess good written and verbal communication skills and have interest in collaborative research.

ASSOCIATE OBJECTS CONSERVATOR

The Conservation Center of LACMA is seeking a qualified full-time Associate Objects Conservator. The incumbent's core duties include active involvement in all facets of the examination, documentation, research, treatment, and long term preservation of the Museum's permanent encyclopedic collections, outgoing loans, acquisitions, special exhibitions, environmental standards, traveling exhibi-

tions, storage and transit conditions.

The incumbent will report and assist the Head Objects Conservator with budgets, lab maintenance, interviewing, training and supervising interns and fellows.

Minimum requirements: bachelor's degree and graduation from a recognized conservation training program or equivalent education as well as professional experience. Professional experience includes at least five years of work in a museum post graduation, preferably in an art museum conservation laboratory that handles encyclopedic collections from ancient through modern times and an understanding of chemical hygiene. Incumbent shall possess good English written and verbal communication skills, good judgment, the ability to maintain professional relationships and be a team player, a publication history demonstrating previous research activity, and active participation in professional organizations (e.g., AIC or WAAC).

PAPER CONSERVATOR

The Conservation Center of LACMA is seeking a qualified full-time paper conservator. The incumbent's primary responsibility is to coordinate and supervise activities of the paper conservation laboratory. Duties include active involvement in the preservation, examination, and treatment of the museum's permanent collection, acquisitions, loans, research, special exhibitions, traveling exhibitions, environmental standards, storage and transit conditions as well as supervising and training paper conservation fellows and/or interns.

The incumbent, with the title of conservator (or associate conservator, depending on qualifications), will report to the Head of Conservation and will provide assistance on budgets and other administrative matters.

Minimum requirement: bachelor's Degree and graduation from a recognized conservation training program or equivalent education and professional experience. Conservation experience should include at least two years in a supervisory or independent conservation position (five years for full conservator),

preferably in an art museum conservation laboratory. Must possess good English written and verbal communication skills, have an interest in research and a demonstrated familiarity with workplace chemical hygiene practices.

Applications: All three positions are non-governmental service positions. The Associate Objects Conservator and Paper Conservator positions can be filled immediately. The Assistant/Associate Conservation Scientist can be filled with an incumbent starting July 1, 2003.

Title and salary will be commensurate with experience. A competitive benefits package is provided. Interviews at AIC can be arranged.

To apply: Please submit a letter of intent, resume, and the names and telephone numbers of three professional references for each position you are applying for to: Adam Kaplan, Human Resources, Los Angeles County Museum of Art, 5905 Wilshire Blvd., Los Angeles, CA 90036. Fax: (323) 857-4720. e-mail: jobs@lacma.org.

Haole Rot

A peculiar condition caused by the sun is referred to locally as haole rot. It's called this because it supposedly affects only white people, but you'll notice some dark skinned people with the same condition. Basically, the skin becomes mottled with white spots that refuse to tan. You get a blotchy effect, mostly on the shoulders and back. Dermatologists have a fancy name for it, and they'll give you a prescription with a fancy price tag to cure it. It's common knowledge throughout the islands that Selsun Blue Shampoo has some ingredient that stops the white mottling effect. Just wash your hair with it and then make sure to rub the lather over the affected areas, and it should clear up.

*from Honolulu-Waikiki Handbook, The Island of Oahu, Moon Travel Handbooks
(highly recommended, Ed.).*

“UK sends antiquities experts to Iraq,”

BBC News, April 15, 2003.

Britain is dispatching a group of experts to Iraq to help in the restoration and recovery of looted antiquities. There has been outrage after coalition troops failed to prevent looters burning priceless libraries and ransacking museums.

Among the works now missing or destroyed are some of the first examples of written words and number systems from the dawn of civilisation. The British Museum - which has the greatest Mesopotamian collection outside Iraq - said the destruction and theft was a “catastrophe” for the country’s cultural heritage. Archaeology experts from the museum will join their embattled counterparts in Iraq in their effort to repair some of the damage.

Dr Lamia Gailani, who was an archaeologist at the Baghdad museum for 10 years, told BBC Radio 4’s Front Row, that there were two responsibilities that now needed to be undertaken. “The first thing is the conservation and the repairing because quite a lot of the material appears to have been smashed not stolen, so we need to repair them all,” she said. “Before that, is how to secure the museum again because now it is open, so really you need to get these two things done at the beginning.”

“An account of the looting,” by Martin Bailey, *The Art Newspaper*, April 17, 2003.

Museum guard, Abdulk Rahman, tried to stop the first pillagers breaking through security gates at the rear of the compound, but he was forced to give up. Once inside, guards and curators were powerless to resist. A few hours later, US troops answered a desperate call from a curator, Raid Abdul Ridha Mohammed. Tanks were brought to the entrance, which dispersed the looters, but the Americans stayed for only half an hour. Immediately after their departure, the looters returned. The main ransacking seems to have occurred the next day, when hundreds of looters quickly gained access to the 28 public galleries.

“The looting of the Iraq Museum - What objects are on this database?”

The Art Newspaper, April 17, 2003.

The Art Newspaper has put illustrations of artwork lost in Iraq’s National Museum online. The drawings come from the museum’s catalog. “We should stress that at this stage there is no detailed information on what objects have been looted, what have been damaged, and what are safe. Nevertheless, the images in the Treasures of the Iraq Museum represent many of the most important objects from the collection, which numbers some 170,000 pieces.”

“Iraq museum looting overstated?”

Wall Street Journal, April 17, 2003.

Was the extent of the looting of the National Museum in Baghdad overstated? “Thanks to Iraqi preparations before the war, it seems the worst has been avoided.” Donny George, the director-general of restoration at the Iraqi Antiquities Department, Wednesday said his staff had preserved the museum’s most important treasures, including the kings’ graves of Ur and the Assyrian bulls.

These objects were hidden in vaults that haven’t been violated by looters. Most of the things were removed. “We knew a war was coming, so it was our duty to protect everything. We thought there would be some sort of bombing at the museum. We never thought it could be looted.”

“Expert thieves took artifacts UNESCO Says,” by Robert J. McCartney, *Washington Post Foreign Service*, April 18, 2003.

Well-organized professional thieves stole most of the priceless artifacts looted from Baghdad’s National Museum of Antiquities last week, and they may have had inside help from low-level museum employees, the head of UNESCO said today.

Museum officials in Baghdad told UNESCO that one group of thieves had keys to an underground vault where the most valuable artifacts were stored. The thefts were probably the work of international gangs who hired Iraqis for the job, and who have been active in recent years doing illegal excavations at Iraqi archaeological digs, according to archaeological experts working with UNESCO. Some of the stolen artifacts are so well known that no collector would

dare let it be known that he or she had them. Looting and thefts also caused extensive losses at three other cultural sites in Baghdad, according to UNESCO. Arabic manuscripts, mostly from 900-1200, were stolen or burned at the Saddam Center for Manuscripts. Archives of the Awkaf religious center, with documents about the Muslim, Jewish, and Christian religions, were burned. Twentieth-century paintings at the Museum of Fine Arts were burned. A museum in Mosul also was looted, but the losses were not as great as in Baghdad.

UNESCO is worried that cultural sites continue to lack adequate protection. “We are still not sure that the institutions . . . have been made safe,” said Mounir Bouchenaki, assistant director general for culture. The organization will ask the United States to authorize creation of a special Iraqi heritage police force. Interpol has been told to look out for stolen Iraqi artifacts, and initial lists of missing items have been sent to checkpoints on Iraq’s border.

There is not yet any active investigation of the thefts because of restrictions on entering Iraq. UNESCO has established a Special Fund for the Iraqi Cultural Heritage to help pay for the emergency measures.

“US experts resign over Iraq looting,”

BBC News, April 18, 2003.

Three White House cultural advisers have resigned in protest at the failure of US forces to prevent the looting of Iraq’s national museum - home to artifacts dating back 10,000 years. Priceless statues, manuscripts, and other treasures were taken away in a wave of lawlessness following the collapse of the government of Saddam Hussein in Baghdad last week.

“It didn’t have to happen,” Martin Sullivan - who chaired the President’s Advisory Committee on Cultural Property for eight years - told Reuters news agency. “In a pre-emptive war that’s the kind of thing you should have planned for,” he said.

In his letter of resignation, Mr. Sullivan called the looting a “tragedy” and said many other Americans shared his feelings. His disquiet was echoed by Richard S. Lanier and Gary Vikan of the 11-member committee composed of experts and professionals from the art world.

“He may be a tyrant, but he loves his art,” by Sarah Milroy, *Toronto Globe and Mail*, April 19, 2003.

When Saddam Hussein went to ground, he forgot to take his collection of fantasy-themed paintings. The cache probably won't make its way to the Louvre, but they say a lot about the man.

In light of the atrocities committed against the Iraqi people and other unfortunates over the past 30 years, it is undoubtedly beside the point to criticize Saddam Hussein for his aesthetics. Still, one of the more tantalizing discoveries of the last few days has been the revelation of the dictator's taste in art.

Among the more lurid treasures to heave into view are the fantasy paintings of American (oh irony of ironies!) painter Rowena Morrill, a native of the town of Cossackie, in upstate New York. No one knows how the painter's works ended up in the possession of Saddam.

The 58-year-old sci-fi painter moonlights as an illustrator, and her paintings often serve as cover art for trash fiction. In one piece, a bare-breasted beauty looks on — helplessly, of course — as a heroic, sword-wielding Fabio-clone wrestles with a giant serpent.

But before we get too snarky, how's the art looking at our own presidential palaces? Well, on a quality level, you'd have to call it a draw. Bush's favourite is a picture called *Rio Grande*, a 1954 canvas by Texan cowboy artist Tom Lea that is on loan to the Oval Office from the El Paso Museum of Art.

Where Rowena is all orgiastic gushing and diaphanous harem pants pulled taught over hard-boiled buttocks, the President's taste runs to the suspiciously sterile. In fact, the Lea classic depicts a desolate desert landscape peopled only by one giant cactus (that thrusting shape again!), all crusted over with spines.

“Looted Iraqi antiquities seized,” *The Age (AP) (Melbourne)*, April 22 2003.

Art collectors and dealers say they are already getting queries about artifacts looted from Iraq's museums, and the FBI said today at least one suspected piece had been seized at an American airport. Thousands of items, some dating back many thousands of years, were taken when US forces overthrew Saddam Hussein's regime.

The FBI has begun working with US and international law enforcement agencies, as well as art collectors, auctioneers, and experts, to try to recover them. Lynne Chaffinch, manager of the FBI Art Theft Program, told reporters that she expected the thieves would attempt to sell most of the stolen pieces in wealthy countries such as the United States, Britain, Germany, Japan, France, and Switzerland.

People in the United States already buy about 60 per cent of the world's art, both legal and illegal.

The FBI will soon send a team of agents, probably along with Chaffinch, to Baghdad to collect information that will be posted for police on the FBI's National Stolen Art File, which along with private and international databases list descriptions of some 100,000 pieces of stolen art.

Interpol plans a conference May 5-6 in Lyons, France, to organise and coordinate international efforts to both recover the stolen pieces and arrest the perpetrators. Some Interpol investigators are already in Kuwait, awaiting US military permission to travel to Baghdad.

“Historic buildings are sitting targets for thieves who plunder the past,” by Nicholas Pyke and Robin Stummer, *The Guardian*, March 1, 2003.

There is a fierce lion's head on the cover of Simon Jenkins' popular guide to England's Thousand Best Churches. Dating from the 12th century, it is well worth seeing. Sadly this is now impossible without a copy of the book: the original has been stolen, victim of a plague of architectural thefts sweeping the country.

The Society for the Protection of Ancient Buildings (SPAB) warns that churches and historic houses have never been at so much risk as crooks target decorative fixtures and fittings to feed the home renovation boom. Such thefts have reached “epidemic” proportions, according to the society, Britain's oldest heritage conservation group.

Last year there were 3,600 thefts from churches alone, with statues, fonts, and even whole altars vanishing. National Churchwatch, the insurance-backed security adviser, says thieves appear to be using reputable church guides as crime manuals.

Architectural looting is scarcely new. It is 70 years since William Randolph Hearst outraged public opinion by destroying the medieval Bradenstoke Priory, in Wiltshire. The newspaper magnate, the model for Orson Welles's Citizen Kane, used the doors, windows, and even the bricks to “restore” his various properties, including a castle in Wales.

“Ancient villa rescued from Vesuvius' mud,” by Rossella Lorenzi, *Discovery News*, March 3, 2003.

The fabled Villa of the Papyri, Herculaneum's most famous building, opened its doors on Saturday for the first time since it was buried in Mount Vesuvius's lava and mud 2,000 years ago.

The largest Roman villa ever found, it was the magnificent seafront retreat for Lucius Calpurnius Piso, Julius Caesar's father-in-law. Piso, a literate man who patronized poets and philosophers, built there one of the finest libraries of its time. A century after Piso's death, in 79 A.D, the villa was entombed under 100 feet of volcanic mud by the eruption of Vesuvius.

Accidentally discovered in 1738 by tunnelers exploring a well shaft, the villa revealed 1,800 rolls of papyrus, reduced to lumps of coal by the 750-degree Fahrenheit cloud that wrapped the city during the eruption.

Paradoxically preserved forever, the scrolls make this the only intact library known to have survived in the ancient world.

But while Pompeii was relatively easy to excavate as it was buried under layers of ash, the Villa of the Papyri lies under solidified mud. The conservation of the western part of the villa has been made possible only because of water-scooping machines.

The digging produced promising findings: the 30,000-square-foot villa wasn't built only on one level, but stretched down toward the sea on four terraces. Many believe that the mud filled lower terraces could hide the fabled second library, which probably contains lost plays by Sophocles, Euripides, and Aeschylus, lost dialogues of Aristotle, and Livy's *History of Rome*, of which more than 100 of the original 142 books are missing.

“Mindless acts...” by Jim Gilchrist, *The Scotsman*, April 21, 2003.

Controversial artists Jake and Dinos Chapman have sparked an outcry with their defacement of a set of £25,000 prints of *The Disasters of War* by Francisco Goya, published in 1863 and portraying the atrocities of the Peninsular Wars. The Chapmans have re-christened their customised Goyas *Insult to Injury*. And well they might.

What particularly rankles with the brothers' critics is that not only have they defaced “original” prints, bought for £25,000, but that they have now cheerfully sold the modified set for six times that amount.

Goya gets the Chapman treatment as part of their provocatively titled show, *The Rape of Creativity*. There is nothing new in one artist making free with another's work - Salvador Dali, in fact, had his way with some of the *Disasters of War* images, though using reproductions, rather than genuine prints.

Professor Duncan Macmillan, *The Scotsman's* art critic and curator of the Talbot Rice Gallery in Edinburgh, is scathing: “There's no reason why they should work on the real thing apart from vanity on their part. I find it objectionable that they should, as they have consistently done, compare themselves to Goya, because he was a deeply serious artist and *The Disasters of War* is one of the most powerful commentaries on war ever created.”

In the Chapmans' case, reaction so far has been mixed, says Andrew Nairne, director of Modern Art Oxford, where the brothers have just sold the prints they modified for £150,000.

“Modern science ruins prehistoric art,” by Paul Webster, *The Observer*, April 13, 2003.

Science is now failing where the caveman's instinct triumphed. After surviving undisturbed for 20,000 years, the prehistoric wall paintings at Lascaux in central France are threatened with irreparable damage by modern man's attempts to save them.

When the caves were discovered in 1940 by four children falling into a hidden entrance, the paintings were perfectly preserved. Now scientists admit 150 frescoes of prehistoric beasts and

hunting scenes, as well as hundreds of etchings and sketches, have developed mold - some of it due to the use of modern products intended to kill fungi.

Isabelle Pallot-Frossard, director of a Paris laboratory, says the use of powerful chemicals to stop the paintings from being covered with mold has seriously unbalanced the ecosystem. “All except the most robust forms of fungi were killed off during treatment,” she said. “These have dominated the weaker species and thrived.”

The threat to Lascaux has led to criticism of France's historic monuments commission. The scientific magazine *Recherche* blamed a bureaucratic muddle for failure to protect the drawings, responsibility being shared by four different officials as well as two rival scientific bodies.

Current Science, March 1, 2002.

The Impressionist artist Claude Monet (1840-1926) is probably most famous for a series of large paintings of water lilies he created at his home in Giverny, France. Smoke damaged one of those paintings in a fire at New York's Museum of Modern Art in 1958. The damage couldn't be fixed then, but now a new technology used by the US space program holds promise that the lilies can be restored to their original beauty.

Chemists Bruce Banks and Sharon Miller, of the National Aeronautics and Space Administration (NASA) Glenn Research Center, developed the technology. Banks and Miller have been devising materials that can withstand the corrosive effects of atomic oxygen in the upper atmosphere.

Atomic oxygen occurs when radiation from the sun splits oxygen molecules. Atomic oxygen damages the surfaces of spacecraft. To learn how to make materials that can resist atomic oxygen's effects, the chemists first had to learn how to make atomic oxygen in the laboratory. Once that was accomplished, the chemists hit on the idea of putting the destructive powers of atomic oxygen to a good use, such as to blast away the corrosion on aging artworks.

Banks and Miller developed a small gun that shoots a beam of atomic oxygen and tested it on a few paint chips

taken from a corner of the damaged Monet. The test worked. The atomic beam vaporized the soot and charred particles and exposed the chips' original colors.

In a full-scale rescue operation, Banks and Miller also zapped lipstick smears that a vandal had left on an Andy Warhol painting. The Center for Conservation at New York University, which now owns the soot-covered Monet, would not say whether it would be restored.

“Civic and mural virtues,” by Eric Slater, *Los Angeles Times*, April 28, 2003.

Hundreds of WPA artworks have been uncovered and restored during a 10-year long effort to revitalize public art in Chicago's schools. Among the most important are a 54-foot long fresco *Outstanding American Women* painted by Edward Millman in 1940.

The mural had been painted over only a year after completion as it was considered “subversive” and “misery-laden” by the then all male school board. Conservation was completed in 1997, and the mural's powerful impact induced city and school officials to fund the conservation of every remaining mural in every school.

In total, 436 murals in public schools from the early 20th century were restored, including the city's only known Modernist mural, Rudolph Weisenborn's *Contemporary Chicago*, 1936.

The preservation program was backed by the Board of Education, however, the conservators who restored the works of art dropped their fees considerably to make the project possible.

“The agony and ecstasy of serving a Michelangelo,” by Hilary Clarke, *The Guardian*, April 21, 2003.

The woman hired to clean Michelangelo's statue of David has walked out of arguably the best job in art restoration - after a row with her boss over the best way to clean the marble hunk ready for his 500th birthday party next year.

Art restorer Agnese Parronchi, 46, who had been spending 16 hours a day with the statue, is refusing to resume work because she objects to the modern techniques chosen by her supervisor, the director of the Accademia gallery where

AYMHM, continued

the 4.8m-tall (16ft) David is housed.

Franca Falletti, the gallery director who led an 11-year health check of the statue before it was decided to go ahead with the restoration, wants it to be cleaned using a modern "wet" technique involving small amounts of water.

Ms. Parronchi believes that any method other than careful dry brushing to remove the engrained dirt could further erode the protective coating. "Statues aren't like people, too much water can damage them," she said.

David suffered during his last clean, late in the 19th century, because of the acid used in the cleaning solution. Ms Parronchi says using water would dissolve any of the remaining protective patina given it by Michelangelo. The row between the two women has also highlighted the cut-throat, female-dominated art-restoration industry in Florence. Although few make it to the top, it is a career increasingly popular with upper middle-class women.

Project Bibliographies from GCI Online

You may be interested to know that the Getty Conservation Institute (GCI) has made two of its project bibliographies available online in PDF format. Both bibliographies represent a distillation of many years of research by GCI staff and make use of unique bibliographic resources that are not always easily obtainable by conservation practitioners.

The Project TERRA bibliography is online at: http://www.getty.edu/conservation/activities/terra/terra_publications.html. This bibliography addresses literature related to the conservation of earthen architectural materials around the world.

The Lime Mortars and Plasters bibliography is online at: http://www.getty.edu/conservation/activities/mortars/mortars_publications.html. This bibliography addresses literature related to the conservation of lime-based mortars, plasters, and stuccoes found in architecture and artifacts around the world.

Calendar

North American Textile Conservation Conference 2003

Tales in the Textile: The Conservation of Flags and Other Symbolic Textiles November 6-8, 2003, Albany, NY
Keynote Speaker – Laurel Thatcher Ulrich. Fourth Biennial North American Textile Conservation Conference co-sponsored by the New York State Museum and the New York State Office of Parks, Recreation and Historic Preservation. The program (November 6-8) includes 23 papers, 9 posters, 2 receptions, a tour, and discussion sessions. Additional tours are offered on the day before and the day after the conference. A separate session of 3 workshops will precede the conference on Wednesday, November 5. Paper presentations will take place at the New York State Museum. Workshops will take place at the Peebles Island Resource Center Conservation Labs in nearby Waterford. Cost, Early Bird (Sept. 1, 2003) \$275.00. For more information or to receive a brochure and registration details in May, please contact Ruth.Potter@oprhp.state.ny.us.

CALL FOR PAPERS

AIC Annual Meeting General Session June 9 - 14, 2004 Portland, Oregon
Towards a Clean Slate: Current Thoughts on the Responsibility, Philosophies, Practices, and Controversies of Cleaning Cultural Properties.

To clean? Not to clean? How to clean? How much to clean? Why to clean? Those are questions... which every conservator faces. In recent years, a number of cleaning techniques have been developed or adapted by conservators. It is for these reasons that the General Session of the 2004 AIC Meeting will look at the cleaning of works of art, artifacts, and monuments from many perspectives. We welcome papers on issues related to the philosophy and ethics of cleaning; the history of cleaning; the aesthetics of cleaning; the mechanics of cleaning. AIC members interested in presenting papers during the General Session should send an abstract of no more than 500 words to General Session Co-Chairs Patricia Griffin (2440 Overlook Road #4, Cleveland Heights OH 44106; cuprorivaite@hotmail.com) and Rebecca Anne Rushfield (66-10 149th Street, #4C, Flushing NY 11367; wittert@juno.com) by Monday June 30, 2003.

Lives of the Conservation Saints

(continued from page 9)

The basis for the canonization of the twins is the belief that they were martyred for the faith by burning. This is supported by the later addition to the *Micheline* illustration of a small black banner over the heads of the two saints which reads "Fires of Freedom." Their martyrdom has been disputed by some scholars, who feel that the inscription refers, in fact, to their kitchen duties. (Note: The text on the banner literally reads "Frys," however this is long held clearly to be a misspelling or regional variant.)

Of Historical Note: A small and disputatous branch of the family traveled to the west and chose an uncommon way of spreading the Word, becoming creators of very fine furniture, noted for the complex inlay of metal and animal materials in floral motifs, depicting the righteous as glorious flowers and the evil as noxious weeds. Their technique, which was highly prized, became known as the Boule de Columbines.

St. Nilfisk

St. Nilfisk, bishop of the city of Sjøkküpen, was a member of a very severe order, the Managers of Care, whose doctrines required the members to ceaselessly walk the streets of the city gathering souls.

It is said of St. Nilfisk that he dedicated himself to the faith when he came to manhood, and as a sign of his commitment vowed never to touch a blade to his head or face. As a result of his faithfulness he was blessed with hair and beard of a thickness and density far surpassing that of his fellow clerics.

St. Nilfisk labored unflinchingly for many years in a small village near the city until the Great Pestilence of 1306 when the air of Sjøkküpen darkened with thick clouds of very tiny objects, thought at the time to be minute demons. The pernicious particles caused much illness and decay and put at risk the Order's ritual of the holy collections. St. Nilfisk was called to the city to assist with the soul gathering. It is recounted that as soon as he began to move about the streets the demon particles were pulled toward him and bound to his hair and beard. St. Nilfisk walked through the city of Sjøkküpen without rest until all the demons were gone. He then cut off both hair and beard and offered them on the altar of the cathedral, where they were responsible for many cures of those suffering from problems of the nervous system.

To honor St. Nilfisk the order established a sect dedicated to his miracles and the invocation of his name, the Holy Exemplars of Pure Air.

St. Nilfisk is the patron saint of house painters, textile workers, and those who labor in the herring industry.