

President's Letter

Beverly Perkins

Don't believe in uncontested elections? Then run for office! I am convinced that the hardest part of being WAAC Vice-President/President is wheedling your colleagues into running for a position on the WAAC board. And if you think it's hard to get people to run for Member-at-Large, try getting people to run for Vice-President!

Having just wheedled a bit at you, I have to say that I really enjoyed being a Member-at-Large and being Vice-President/President. I got to know some GREAT people, and I learned about WAAC and its mechanics. WAAC really needs the participation of its members to continue to be such an outstanding organization.

We need to thank all of the members who ran for office – Thank You.

Congratulations to Camilla Van Vooren who was elected incoming Vice-President and to Chris Stavroudis and Leslie Rainer who are our new Members-at-Large. Thank you to Maureen Russell and Chris Stavroudis who so valiantly served as Members-at-Large. We are glad to have Chris back, and Maureen will be greatly missed at board meetings.

You are in good hands this year as Laura Downey Staneff moves from VP into the Presidential position. She has chosen Teresa Moreno to be the WAAC Secretary for the upcoming year, and they are already working on the meeting in Tucson.

Chris Stavroudis receives the University Products award. AIC President Tom Chase presented the award to Chris at the annual AIC meeting in Minneapolis. John Dunphy of University Products presented an award check to Chris. This Award is given to a conservator who has exhibited distinguished achievement in the conservation of cultural property. As WAAC members, we certainly know of the commitment Chris has to our health and the health of WAAC in general.

Carolyn Tallent is honored for a decade as Editor of the WAAC Newsletter. Carolyn received a WAAC life-time membership in recognition of her hard work as Editor of the esteemed WAAC *Newsletter*. Carolyn also received a beautiful hand-bound commemorative book created by Jana L. Dambrogio of NARA.

Hairy Treatments and Dancin' Boots – The Buffalo Bill Historical Center was a welcoming venue for a conference that proved to be full of high quality presentations. We would like to thank Sue Simpson Gallagher for her generous hospitality. Sue's art gallery on the main street in Cody was a beautiful venue for the opening reception and her father, Senator Alan Simpson, was a delightful speaker. And a special thank you Cody Artist Harry Jackson who so warmly and graciously welcomed us into his studio. Not only did we learn at the meeting about our colleagues' solutions to some sticky conservation problems; we learned a few new dance steps under the stars from instructor Steve Gillis.

Silent Auction- Thank you to all the WAAC members who brought and bought items. Once again, Robert Gamblin's donated set of Conservation Colors was the high bid item. The silent auction raised \$1,337 that will be used as seed money for the maintenance of the outdoor sculpture at the BBHC. The silent auction will continue next year in Tucson.

I wish to especially thank my dear friend Alexis Miller who was such an excellent WAAC Secretary. She not only carried out the normal duties of Secretary, she also provided me with warmth, guidance, and humor when it mattered most.

Earlier this year I was wondering why I felt the need to run for WAAC President in order to bring the annual meeting to Cody, Wyoming. I finally realized that it came down to match-making. I wanted to introduce the organization I love, WAAC, to the region I love, Wyoming. It may not have been a match made in heaven but it was a memorable three day stand.

Contents

President's Letter	1
Regional News	4
Membership	10
Technical Exchange	11
Health and Safety	12
MOLD	
A Conservator's Very Basic Mold Primer	16
<i>Excerpts from: Disaster Preparedness Workbook for U.S. Navy Libraries and Archives</i>	17
Salvage Operations for Water Damaged Archival Collections: A Second Glance	19
<i>Excerpts from: Emergency Salvage Procedures for Wet Items</i>	32
Getting Ready to Respond, When Theory and Life Meet	36
AYMHM	40

From the Editor

On August 25th when I went off to the meeting in Cody, this issue of the *Newsletter* was roughed out at 20 pages of business as usual. As I write this, after emails, attachments, website searches, and many phone calls, it has acquired a second "what-to-do-post-flood" personality and looks to be over 40 pages long. Along the way some apologies and thanks have become due.

First of all, apologies to the two authors whose articles will be deferred until next time: Nancy Escher "Q. and A. with an Appraiser" and Monique C. Fischer "Creating Long-lasting Inkjet Prints" – there just wasn't room.

Next, to readers for any typos that might slip through. This is not the fault of our ferociously thorough text editor, Wendy Partridge. The content was changing up until the last moment, and she was not given her usual two full read throughs. In fact, bits of it she hasn't seen at all.

Now, thanks to the people who responded so quickly with information.

Paul Messier, for help with the NCEN announcement.

Eryl P. Wentworth, for the news from AIC.

Hillary Kaplan, for the time and energy spent putting together the mold basics.

Robert Schnare, Director of the Naval War College Library, who made the information from the *Disaster Preparedness Workbook for U.S. Navy Libraries and Archives* so accessible. (He actually emailed me the table of contents of the version currently under revision with the subject heading "Carolyn, ask for what you would like.")

Bety Walsh, for the new preface to her article.

Robert Herskovitz, of the Minnesota Historical Society for permission to use information from their website.

Jennifer Koerner, for turning her WAAC talk into an article in only a few days.

Penultimately and as ever, Chris, who has produced in less than a week what is probably the definitive Health and Safety column on post-flood conditions.

And lastly, the Board of Directors of WAAC, who voted to pay for this issue to be mailed first class so that the *Newsletter* could arrive as soon as possible.

Sometimes it's really cool to be Editor.

Carolyn

In sorting through the available disaster information I've left out topics like planning (too late) and building remediation (somebody else will probably be doing that) and have tried to provide what conservators will need when they are confronted with retrieval, initial drying and stabilization, and packing of wet, moldy objects and collections. Unfortunately very little addresses a disaster of this scale. (It was very sad to keep reading "freeze within 48 hours" and "immediately isolate infested items.")

All of the information is the best I could find as of today, Sept. 14, when the *Newsletter* went to the printers.

Carolyn Tallent is a conservator in private practice

Attention Foreign Members

This issue of the *Newsletter* is larger, and thus heavier, than usual. In order to reduce the cost of postage, copies sent abroad have been printed on a lighter weight paper. The next issue will return to the standard paper.

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

EDITOR

Carolyn Tallent
826 Centinela Ave.
Santa Monica, CA 90403
310/453-1834
ctallent@earthlink.net

REGIONAL NEWS

Laura Downey Staneff
Silverpoint Art Conservation, LLC
P.O. Box 522,
Nederland, CO 80466
303-642-8699
LLDowney@aol.com

TECHNICAL EXCHANGE

Albrecht Gumlich
310/440-7448
Agumlich@getty.edu

HEALTH & SAFETY

Chris Stavroudis
323/654-8748
fax: 323/656-3220
cstavrou@ix.netcom.com

ARTICLES YOU MAY HAVE MISSED

Susanne Friend
4823 Berryman Avenue
Culver City, CA 90230-5109
310/391-3537
sef@conservartassoc.com

COPY EDITOR Wendy Partridge

Photocopying

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

Note to Authors

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

Disclaimer

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

Deadline

Contributions for the *January* Newsletter should be received by the Editor before **November 30, 2005**.

Western Association for Art Conservation

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

PRESIDENT

Beverly Perkins
37224 Huckaby Lane
Murrieta, CA 92562
951-698-1520
Perkins.B@comcast.net

VICE PRESIDENT

Laura D. Staneff
303-642-8699
lldowney@aol.com

SECRETARY

General Information
New Memberships
Publication Orders

Alexis Miller
Balboa Art Conservation Center
P.O. Box 3755
San Diego, CA 92163-1755
619-236-9702 fax 619-236-0141
lxs2002@hotmail.com

TREASURER

Change of Address
Payments

Tania Collas
4430 Overland Ave. #3
Culver City, CA 90230
213/763-3513 fax: 213/746-3628
tcollas@nhm.org

MEMBERS AT LARGE

Scott Carrlee
Nicholas Dorman
Maureen Russell
Chris Stavroudis

WEB EDITOR

Walter Henry

PUBLICATIONS FULFILLMENTS

Donna Williams

Individual Membership in WAAC costs \$30 per year (\$35 Canada, \$40 overseas) and entitles the member to receive the WAAC Newsletter and the annual Membership Directory, attend the Annual Meeting, vote in elections, and stand for office. Institutional Membership costs \$35 per year (\$40 Canada, \$45 overseas) and entitles the institution to receive the WAAC Newsletter and Membership Directory. For membership or subscription, contact the Secretary.

Internet

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

News From AIC

9/14/05

AIC's Emergency Preparedness, Response, & Recovery Committee immediately began collaborating with the American Association of Museums, the Southeastern Museums Conference and the Southeast Regional Conservation Association to bring together information regarding response and recovery needs. These groups are coordinating donations for travel, lodging and the purchase of supplies. Read more to contribute to these efforts at the NCEN site:

<http://palimpsest.stanford.edu/byform/mailling-lists/ncen/>

AIC is matching volunteer conservators with specific experience and expertise to the needs of particular sites. AIC is participating in this effort through the Heritage Emergency National Task Force, along with such organizations as Heritage Preservation, FEMA, National Trust for Historic Preservation, AASLH, SEMC, AAM, and others.

Beverly Perkins is taking on the job of coordinator of AIC Response to Katrina. Bev will be working to collect the names and backgrounds of conservators willing to respond and matching them up with institutions in need. At present, to volunteer you go to:

<http://www.surveymonkey.com/s.asp?u=821221332752>.

(by the time you get this, there will probably be a direct link from AIC's home page.) There is an information form which can be submitted directly.

AIC would also like to try and reach the public in the affected area by doing a blitz of newspaper interviews throughout the US. They are working on a list of talking points that could be covered. Conservators with relevant backgrounds are asked to contact their local papers. Look for an upcoming list of talking points on the AIC web site.

Why put information in a paper in Ann Arbor? As people are going through the recovery process they will be in touch with friends and family throughout the US. If they are about to trash the family heirlooms, maybe somebody who has read one of our articles can stop them and give them some advice.

Congratulations to Chris Stavroudis on being honored with the University Products Award

The following was written to the WAAC board members by Walter Henry after hearing the news. It is reprinted here with his permission as it so well expresses what we all felt.

I can't tell you how deeply satisfied I am that you have been honored in this way. Had I known it was in the offing, I would have volunteered to write at considerable length your remarkable contributions to the field, and would still have touched only the surface. I hope that as you look at your fellow recipients you will understand that, unlike at least one of them (Walter is a former recipient), you truly deserve to sit among what is a genuinely august group of people who have made a deep and lasting mark upon the field. That you have done so with unswerving generosity and openness makes your contribution all that more treasured.

I would send this privately and spare you a blush, but I really am so emotionally uplifted by this announcement that I felt that sharing those feelings with our friends is the right thing. I look forward to standing for your ovation, which will be, from all in the audience – and certainly not least among your WAAC colleagues, loud, long, and heart-felt.

Regional News

In the past few years WAAC has been losing some institutional members (apparently we're a luxury when money gets tight) and various costs (printing, postage, etc.) have been going up. We still have an adequate financial reserve, but to counteract the trend and to keep the organization strong, we need to increase our membership just a bit. We all have the responsibility for locating those unenlightened souls who have not yet discovered WAAC, or who are just cheap and are reading somebody else's copy of the *Newsletter*. The dues are only \$30 and the Board is committed to keeping them there. To join, contact our new secretary:

Teresa Moreno
Arizona State Museum
University of Arizona
Tucson, AZ 85721-0026
ph. 520-621-6314
fax 520-621-2976
tkmoreno@email.arizona.edu

ALASKA

Monica Shah attended the CAC meetings this year in Jasper, Alberta and co-presented a paper on the move of collections at the U. of Alaska Museum of the North. She also attended a workshop on the identification and conservation of fur and leather.

Emily Ramos has accepted the part time position as Art Bank Curator for the Alaska State Council for the Arts. The Art Bank provides artwork for public places around Alaska.

Ellen Carrlee finished a major exhibition in time for the summer tourist season. The exhibition *Pleasure and Perils, Juneau Steamships and Shipwrecks* displayed many artifacts recovered from underwater shipwreck sites.

Scott Carrlee recently traveled to Ketchikan to survey totem poles, to Anchorage to participate in the planning for the new Arctic Studies Center of the Smithsonian, and to Denali Nat'l Park to test the interpretive collection for the presence of arsenic residues. Scott is also treating a water logged basket found near the town of Yakutat. The basket is possibly several hundred years old judging from dating done at an archaeological site nearby.

Regional Reporter:

Scott Carrlee
Alaska State Museum
395 Whittier St.
Juneau, AK 99801-1718
ph: 907-465-4806 fax: 465-2976
scott_carrlee@eed.state.ak.us

ARIZONA

Martha Winslow Grimm has finished preparing examples of fabrics designed by Frank Lloyd Wright during the 1950s and '60s. The mounted textiles will be part of an upcoming exhibit titled *House Beautiful* which will travel for two years to various museums in the US.

Nancy Odegaard co-taught the Spot Testing Course at the Conservation School of Copenhagen with Scott Carrlee and lectured on "Objects with Matte Paint" at the U. of Oslo Conservation Program in May. She also lectured on pesticide residues in a workshop hosted by the Wisconsin Hist. Society in Madison.

Teresa Moreno attended the Metals Conservation Summer Institute at Worcester Polytechnic Institute. She presented a *Packing Workshop* with **Sherelyn Ogden** and **Maggie Kipling** at the Tribal Archives, Libraries and Mus. Conference in Mesa, AZ. Maggie Kipling joined the staff of Southwest Move Project in Los Angeles in August.

Annick Vuissoz has accepted a three month Samuel H. Kress Foundation Post-Graduate Conservation Fellowship at the Arizona State Museum. **Hui-Chun Chen** of the Graduate Institute of Conservation at Tainan National U. in Taiwan will complete a graduate internship during the fall semester at the ASM.

Melissa Huber has moved to Austin, Texas to begin the graduate program in architectural preservation at the University of Texas. The program includes architectural conservation.

Sonya Issaeva has joined the ASM Preservation Division as administrative and conservation assistant.

Julie Unruh has left the ASM and has joined an archaeological excavation in Turkey. She presented a paper on Adhesives Testing at the AIC meeting.

All Western Archeological and Conservation Center lab staff continue to assist **Brynn Bender** on the Historic Riverboat Project at the Grand Canyon. Brynn recently completed treatment of the *WEN* and is now working to complete the *EDITH* which traveled the Colorado River. Brynn, **Maria Lee**, **Audrey Harrison**, and **Angie Brock** are currently conducting maintenance treatments for several hundred leather objects.

Gretchen Voeks is busy with Collection Management Plan teams in six national parks. Gretchen, Maria, and Angie are repairing and cleaning tinwork lamps from the Petrified Forest's Painted Desert Inn. **Tara Hornung** has left the Western Archeological and Conservation Center for the NYU program and we all wish her well!

Regional Reporter:

Gretchen Voeks
Senior Conservator
Western Arch. and Conservation Center
255 N. Commerce Park Loop
Tucson, AZ 85745
ph: 520-670-6501 x 251 fax: 670-6525

HAWAII

The termites have been particularly busy in the Islands the last several months based on the number of paintings which have come into **Larry** and **Rie Pace's** studio. The termites like linen (especially with glue linings). When viewed from the front the paintings look undamaged. It seems the termites are quite particular and leave behind the ground and paint layer. Larry and Rie Pace have finished the first phase of the survey of the panel paintings at the Honolulu Academy of Arts. The paintings are being slowly re-acclimated in preparation for reinstallation into climate controlled galleries.

The recent "Wood Skin Ink" conference on Maui, offered **Susan Sayre Batton** another perspective on Japanese prints. Tattoo artists, influenced by ukiyo-e prints, gave illustrated lectures. Inspired by the conference, the Academy has an exhibition on Edo period prints depicting tattoos in the Michener Gallery.

Thor Minnick has been busy working on private collections, and has submitted proposals to 'Iolani Palace and The Mission Houses Museum for conservation of furniture.

Debra Evans (Fine Arts Museums of San Francisco) and **Jeffrey Warda** (Kress Conservation Intern) spent two weeks at University of Hawaii Preservation Department treating the rare maps damaged with mud and water in the October 2004 flood. They also trained staff and completed a protocol for the University and FEMA on basic treatment for damaged maps.

Susan Sayre Batton and Debra Evans gave talks for the on-going series ("Why we need Conservators in Hawaii") sponsored by the University of Hawaii'i Preservation Department. Batton talked about her conservation treatment of prints in the Michener Collection, and Evans presented on care and handling of rare books for exhibition. **Lynn Davis** stirred things up at the Hawaii'i Museums Association annual conference with pre-conference meetings with Museum staff and directors to consider their disaster preparedness status.

Lots of work to do, but conservators know how to play. The Paces introduced **Ann Albano** to a real Hawaiian meal, including poi. At a vegetarian Hawaiian lunch Debra Evans, Jeffrey Warda, **Tracy Power**, and other guests lounged on Lynn Davis' lanai, made lei, and kayaked in Kaneohe Bay. **Jane Bassett** (J. Paul Getty Museum) threw a great party at her Kailua beach vacation house. Parties always provide a great opportunity to get together, eat, laugh, and see **Linda Hee** and **Downey Manoukian**.

Regional Reporter:

Lynn Ann Davis
Head, Preservation Department
Hamilton Library
University of Hawaii'i
2550 The Mall
Honolulu, Hawaii'i 96822
ph: 808-956-8539
ldavis@hawaii.edu

GREATER LOS ANGELES

After a grand retirement party at LACMA in the Japanese Pavilion, **Victoria Blyth Hill** started her new life as an unemployed person for the first time in 32 years! She wishes to send her thanks and

gratitude to all the staff of the Conservation Center and the Museum for many years of working as a team and building the Center and LACMA together. Victoria will be working as a private conservator and consultant. In October, she will moderate a small symposium on Indian Painting at the San Diego Museum of Art. We at LACMA will miss her and wish her the best.

LACMA also welcomes **Mark Gilberg**, who joined the Conservation Center as its new director in August. Before joining LACMA, Mark served as President of Conservation Processes Research and Adjunct Professor in the Department of Anthropology, Arizona State University. Mark earned his PhD in 1983 in Archaeology from the University of London Institute of Archaeology. From 1982-1987, Mark was Conservation Scientist at the Canadian Conservation Institute, National Museums of Canada. He became Scientific Officer at the Australian Museum from 1987-1993. In 1994 Mark took the position of Research Director at the National Center for Preservation Technology and Training at the National Park Service. It was with Mark's guidance and the support of NCPTT that the Laser Cleaning Research Facility at LACMA was created.

During 1994 -2004, Mark worked on a number of projects. He organized a government/university consortium to assess the application of new surveillance technologies for the protection of cultural resources against vandalism and looting. He also created the application of new termite baiting technologies for the control of subterranean termites. He developed a method of remote sensing of archaeological sites using thermal imaging. Mark created a model to evaluate the economic impacts analysis of historic preservation. He also assessed long-term impact of protective glazing on stained glass windows. Mark's area of specialization is the development of new treatment methodologies for the care and preservation of cultural materials with particular emphasis on archaeological/ethnographic artifacts. He is the author of five major publications on these subjects.

Joe Fronck was invited to Rio de Janeiro last July to present a 5-day workshop on the principles and aesthetics of paintings conservation. The workshop is part of a program of guest speakers, organized by **Edson Mata** and was at-

tended by approximately 15 conservators and museum curators from Brazil. LACMA Lampadia Fellow **Cristina Graça** will be in San Francisco, New York, and Washington in September, to visit conservation facilities and training programs, as part of her ongoing research on conservation in the US.

Jennifer Koerner attended "Recovery of Wet Materials following a Disaster" workshop held at the National Conservation Training Center in West Virginia in May, co-sponsored by the National Park Service and AIC.

Chail Norton attended the AIC conference held in Milwaukee in June and got loaded with "digital archiving" information. Also in June, **Soko Furuhashi** gave a presentation about costume plates at the "Fashion in the Age of Louis XIV" symposium held at UCLA.

Paper conservation is delighted to have **Chie Ito** continue as a Mellon Fellow for a second year, beginning in October 2005. **Kate Sahmel** was a Camilla Chandler Frost Intern in Textiles Conservation at LACMA this past summer. Kate is currently a third year graduate student at the Winterthur/University of Delaware Conservation program. During her internship at LACMA, Kate surveyed textiles from the Madina collection of Islamic art.

A long-term study has been initiated on the J. Paul Getty Museum's Roman mummy and portrait collection. This study, conducted by **Marie Svoboda**, began with the treatment and preparation of the mummy for exhibition at the soon to reopen Getty Villa. With assistance and collaboration from the UCLA Radiology Department, the 2nd century AD mummy was recently CT scanned. Preliminary findings are very interesting; further interpretation of the images are ongoing. The study of these beautiful artifacts will involve research and analysis of the materials used in their fabrication for a future publication.

Carmen Albendea, the post-graduate intern in Paintings Conservation at the Getty, has been restoring a collaborative painting of the *Allegory of Earth* by Jan Brueghel II and Van Balen. Carmen has also been helping carry out technical examinations of paintings in the studio. Carmen will be finishing in September and moving to a Kress Fellowship position at the Walters Art Museum.

Regional News, continued

Devi Ormond, Conservator of Paintings at the Kröller-Müller Museum, in the Netherlands, has been a visiting conservator for 3 months. She has been treating a portrait by Fantin-Latour from the Kröller-Müller collection. From the same collection, **Mark Leonard** has cleaned and is restoring a large portrait of a clown by Renoir, and **Tiarna Doherty** is working on a landscape by van Gogh. The Paintings Conservation Department at the Getty will be welcoming **Sue Ann Chui** as Assistant Conservator in October 2005. The Getty's new post-graduate intern in paintings for 2005-2006 will be **Laura Rivers**.

Mark Leonard has finished the restoration of Baglione's *Sacred and Profane Love* from the Gemaldegalerie, Berlin. **Yvonne Szafran** is working on one of the Getty's latest acquisitions, a landscape by Simon Denis. The painting is executed on paper so Yvonne is working in association with paper conservator, **Nancy Yocco**. Yvonne is also cleaning the *Circumcision* by Jacob Cornelisz van Oostanen from the Portland Museum of Art.

David Bomford, Senior Restorer from the National Gallery of London, is the Paintings Conservation Department's Guest Scholar at the Getty for the summer months. David will be giving a lecture on Degas at the Getty in early August.

In Decorative Arts and Sculpture Conservation at the J. Paul Getty Museum, **Brian Considine** and **Julie Wolfe** are preparing for the conservation and installation of 28 pieces of modern outdoor sculpture that are to be donated to the Museum by the Fran and Ray Stark Trust. The sculpture will be exhibited around the Getty Center, both at the bottom and the top of the hill. **Katrina Posner** has joined the department to help with the effort.

Brian Considine and **Arlen Heginbotham** are working on an exhibition *A Cabinet Rediscovered* about their research into the authenticity of a French Renaissance cabinet. The exhibition will open at the Getty Center in November.

Andrea Morse and **Rosa Lowinger** were in Hawai'i in May and are working with the State of Hawai'i on a project

in the State Capitol, along with a survey of some of the sculptures the State owns. **Viviana Dominguez** has been working with Sculpture Conservation Studio on the conservation of the mural *Unbridled* for the City of Santa Monica.

Rosa Lowinger's book *Tropicana Nights: the Life and Times of the Legendary Cuban Nightclub* will be published in October by Harcourt. *Tropicana*, which is set in a spectacular 1950's modernist building, is probably the world's most famous nightclub. Lowinger tells the story of this rollicking place, where Nat King Cole and Josephine Baker headlined, together with Ofelia Fox, the widow of *Tropicana's* last owner.

Everyone in the studio is working hard to finish up the last final panels (of 60 panels total) for the WPA petrachrome mural *History of Transportation*. The installation date of the mural in its new location is now set for early 2006. SCS has been working with UCLA on landscaping their sculpture garden (they are finally going to put in a sprinkler system that will not spray the sculptures) and the installation of the sculptures that have been in storage while the new art building was being built.

Susan Sayre Batton presented a lecture in June entitled "Frank Lloyd Wright and the Arts of Japan" to the Friends of Graphic Arts at the Grunwald Center of the UCLA Hammer Museum. The presentation reviewed art historical information on ukyo-e prints, printmaking materials and techniques, and a discussion of selected Grunwald prints that belonged to Frank Lloyd Wright. The museum is presenting an exhibition of these prints in the fall in conjunction with a Frank Lloyd Wright conference on architecture in Los Angeles.

Susie Seborg, Kress Foundation conservation summer intern at the Natural History Museum of Los Angeles County, completed the stabilization treatment of a suit of late Tokugawa period Japanese samurai armor. Susie's other summer conservation projects included stabilizing a rare platypus specimen and rehousing archaeological Peruvian textiles.

The Natural History Museum was awarded a generous grant from the Institute of

Museum and Library Services for a Conservation Assessment of the museum's 1924 Douglas World Cruiser, the *New Orleans*. **Tania Collas**, Project Director, coordinated the intensive survey of the aircraft with NHM History curatorial and collection staff and three special consultants: **Sharon Blank**, Lead Conservator and modern materials specialist in private practice; **David Hallam**, Consulting Conservator from National Museum of Australia in Canberra; and **Malcolm Colium**, Consulting Conservator from the Henry Ford Museum in Dearborn, MI.

Chris Stavroudis and **Tiarna Doherty** co-taught the first Modular Cleaning Workshop at the Intermuseum Conservation Association (ICA) in Cleveland, OH, in August. The workshop was co-sponsored by ICA and AIC. (There was no involvement from the CIA and we don't know what IAC, ACI, and CAI might stand for.) The workshop was organized by **Wendy Partridge** (also the *Newsletter's* ablest of copy editors). The three day workshop consisted of lectures, mixing of stock solutions and gels, and testing the system on sample paintings. Each participant left with an aqueous stock solution set so they could employ the techniques when they returned to their own studios.

Regional Reporter:
Virginia Rasmussen
Conservation Center
Los Angeles County Museum of Art
5905 Wilshire Blvd.
Los Angeles, CA 90036
ph: 323-857-6168
vlr@lacma.org

PACIFIC NORTHWEST

John Kjelland has been performing a multidiscipline treatment of a mechanically voiced fortune telling machine from 1910. He is also constructing an additional studio building to provide isolated treatment environments.

J. Claire Dean has been doing field work in various places this spring including Joshua Tree Nat'l Park, Anza-Borrego State Park, Tempe, and a few places closer to home. In March **Debra Uhl** once again assisted her with field work on the US Marine Corps base at Twentynine Palms, California. Claire is also Principle In-

Regional News, continued

investigator for a NCPTT funded research project involving Meg Abraham and the Confederated Tribes of the Umatilla Indian Reservation. They are trying to identify more culturally appropriate treatments for vandalism at rock image sites.

Carol Pratt wishes to announce her retirement from private practice in paper conservation.

Jan Cavanaugh, Conservator of Paintings, taught a course on the history and theoretical issues of art conservation during Spring Term 2005 in the Art History Department of the University of Oregon in Eugene.

The Jordan Schnitzer Museum of Art at the University of Oregon in Eugene, closed since 2000 for a \$14.2 million expansion and remodeling project, reopened to the public on January 23, 2005. With 63,000 square feet of space--nearly double the former size--the JSMA is now the 13th largest university museum in the country .

The expanded gallery spaces will allow the museum to showcase more of its 12,500-piece collection that includes American, European, Korean, Chinese, and Japanese art, while also hosting concurrent temporary exhibitions. In preparation for the reopening, conservation was carried out on works in the permanent collection by Jan Cavanaugh (paintings), **Andrea Delos-Reyes** (paper), and **Tom Fuller** (objects).

The additions to the 1932 structure and renovations in the building design by the Chicago firm of Hammond Beeby Rupert Ainge, Inc. included significant improvements in environmental controls, better prep facilities, and an increase in the storage space from 1,500 to 4,700 square feet. Temperature and humidity levels now meet ASHRAE A standards in storage and the new galleries and ASHRAE B in the older areas. Old non-archival storage furniture was also replaced. Under the guidance of Objects Conservator **Marie Laibinis-Craft** and with funding from a 2004 IMLS Conservation Project Support grant, high density compact Spacesaver art racks were installed to accommodate framed art, and mobile high density compact storage units were installed for 3-dimensional objects.

Allison & Ross, Pacific NW Paper Conservation, and Hascall Museum Services are working together to facilitate a coordinated and comprehensive approach to the preservation and presentation of fine art for the Seattle regional community with a range of services at one location. These services include in-house gilding, custom finishes and frame restoration, archival custom matting and framing, exhibition design and installation, conservation services and consulting for collections care, pedestals, crating, lighting, museum mounts and art transportation, seismic and conservation mountmaking, and non-toxic pest management.

Jamie Hascall of Hascall Museum Services moved his mountmaking shop into a space at Allison & Ross Fine Art Services that was formerly occupied by **Sarah Melching** of Pacific NW Paper Conservation Services. The address is 2234 First Avenue S., Seattle, WA 98134. Although based in Olympia, Sarah meets regularly with clients at the Allison & Ross location.

Regional Reporter:
Peter Malarkey
P.O. Box 9682
Seattle, WA 98109
ph : 206-378-1051
pmpc@att.net

NEW MEXICO

At the Conservation Department of the Museums of New Mexico, third-year Buffalo interns **Paula Hobart** and **Angie Elliott** have completed 20-day options in San Francisco and Turkey, respectively. Paula consulted with contemporary artist Richard Tuttle, treating some of his works for the large retrospective exhibit at SFMOMA. Paula will leave Santa Fe in September to begin a contract position at the Nelson-Atkins Museum in Kansas City. Angie worked her second summer at the archaeological site Gordion, Turkey, and was awarded the Fellowship at the Walters Art Gallery in Baltimore, which she will begin this Fall. We have enjoyed having Paula and Angie with us and we wish them the best of luck!

Conor McMahon will continue his tenure at the Museum of New Mexico with a contract position. Conor is complet-

ing treatment on the weapon collection from the Palace of the Governors for the Save America's Treasure Grant. Assistant conservator **Larry Humetewa**, contract furniture conservator **Mark Minor**, textile conservator **Deb Juchem**, and a full-time textile conservator yet to be hired, are also part of this large conservation project.

Mina Thompson, Associate Conservator, continues work on the recent SAT grant and an IMLS grant awarded to the Palace. She and Larry are currently treating artifacts and providing exhibit recommendations for the inaugural exhibit at the new state monument, El Camino Real International Cultural Heritage Center in central New Mexico. Mina and Angie are completing their Mimbres pottery research and are embarking on a joint survey on the same collection with **Landis Smith**.

Senior Conservator, **Maureen Russell** recently traveled to Guatemala at the invitation of the US Embassy as a Visiting Scholar in the Ambassador's Program for Cultural Preservation. She consulted with museum staff on collections care, earthquake mitigation, storage and museum environments at the Museo Nacional and the Museo Popol Vuh in Guatemala City.

Kieth Bakker, Betinna Raphael, Patricia Morris, Stephen Prins, and Jeanne Brako have all participated in a lecture series for collectors and their collections offered by the Wheelwright Museum in Santa Fe during July and August.

M. Susan Barger is the new Chair of Conservators in Private Practice for the AIC.

Finally, we have a new colleague in our midst. After attending the WAAC meeting in Santa Fe, **Joe Sembrat** and his wife bought a house and have moved to Santa Fe. They still continue with their business, Conservation Solutions, Inc., in Washington, D.C. Joe gave a talk at the AIC meeting in June about their project conserving a Saturn V Rocket.

Regional Reporter:
M. Susan Barger
3 Moya Lane
Santa Fe, NM 87508
msbarger97@earthlink.net

ROCKY MOUNTAIN REGION

Laura Downey Staneff spent two weeks in Tucson, Arizona last July, consulting for the Arizona State Museum, the Center for Creative Photography, and the University of Arizona Art Museum, as well as meeting with private clients. She also found time to take a look at possible venues for WAAC's 2006 Annual Meeting, which will be held in Tucson.

These are busy times for conservators at the Denver Art Museum, **Carl Patterson, Jessica Fletcher, Paulette Reading** and **Kristy Jeffcoat**. All are involved in the planning and implementation of new galleries in a 146,000 sq. ft. addition designed by German architect, Daniel Libeskind. Conservation treatments are underway on over 600 items for the new installations. Treatments vary from simple cleanings and rematting to complicated stabilizations on objects from Africa and Oceania.

Conservators are also involved with the museum's education department on programs to give visitors a greater understanding of conservation and collections care.

In addition, Jessica Fletcher is exploring conservation issues related to contemporary Pueblo pottery. After some initial learning and experimentation, the lab's new IR camera is up and running successfully. Carl Patterson and Kristy Jeffcoat were invited to give lectures in Trujillo, Spain this past May. The focus of the study tour was the connection between Spain and the Colonies.

Interns **Dawn Jaros** and **Paige Issacs** will be starting graduate school at the Art Conservation Program at Buffalo this August. Dawn completed her internship at the Denver Art Museum in May. Paige has continued to work at the museum four days a week preparing the aforementioned African and Oceanic collections for exhibit in the new wing.

Deborah Uhl, third-year intern at the Western Center for the Conservation of Fine Arts, will be graduating from State University of New York, Buffalo in September. Deborah will be staying on at WCCFA as a fulltime staff member following her graduation.

WCCFA has been awarded a contract to treat all the murals in the Utah State Capitol in Salt Lake City. Work on the murals will begin in October. The state capitol is undergoing a complete renovation and should re-open in 2008 or 2009. WCCFA will also treat 21 easel-sized paintings that hang in the state capitol including 14 governors' portraits.

D. Hays Shoop participated in the AIC-sponsored workshop on varnishes for paintings in St. Louis in July, and **Camilla Van Vooren** participated in the Modular Cleaning Program Workshop in Cleveland in August. WCCFA is opening a small satellite office near Lander, Wyoming. WCCFA has been providing conservation services to many private and museum clients in Wyoming for over 20 years. Our address and phone number in Wy. are 35 Carpenter Road, Box 988, Lander, Wy., 82520, 307-335-8574.

Last April **Victoria Montana Ryan** presented an IPM basics session and a Preventive Care Workshop for the Oasis 2005 conference hosted by the Nevada Dept. of Cultural Affairs. In May, at the Colorado-Wyoming Assn. of Museums annual conference, Victoria, **Jeanne Brako** and **Gina Laurin** led participants in a fun-filled test of knowledge concerning myths and truths in the Objects ID roundtable session.

Regional Reporter:
Paulette Reading
Denver Art Museum
100 W 14th Ave. Parkway
Denver, CO 80204-2788
ph: 720-865-5069
preading@denverartmuseum.org

SAN DIEGO

Beverly Perkins was elected to the AIC Nominating Committee at the annual business meeting and remains a member of the AIC Emergency Preparedness and Response Committee. Bev just returned from serving on an IMLS grant review panel in Washington and is currently conserving seventy-seven 17th-century Persian tiles for the San Diego Museum of Art.

Regional Reporter:
Frances Prichett
5234 35th St.
San Diego, CA 92116
ph: 619-283-5011
fprichett@yahoo.com

TEXAS

Olivia Primanis reports that in response to a devastating fire at the Guadalupe Arts Center in Austin in February, local conservators and conservation studies students offered general emergency response information and provided workshops for 40 local artists. Conservators with specialties in paintings, objects, photos, books, paper, and textiles were on hand to answer questions about disaster mitigation and the care of fire-damaged artworks.

This past spring and summer, **Kuo Tsung-Wei**, a student at the Graduate Institute of Conservation of Cultural Relics Studies at Tainan National College of Art, Taiwan, has been interning in paper conservation with **Stephanie Watkins** at the Harry Ransom Humanities Research Center at the U. of Texas at Austin.

Mark Van Gelder did a PowerPoint presentation for a 4th grade class at Tobias Elementary School in Kyle, TX, on May 17th. He talked and answered their questions about his work as a paintings conservator, illustrated with images of his studio, and treatment stages of various projects. The children asked good questions, and especially liked looking at stuff with the Optivisor.

Regional Reporter:
Ken Grant
Exhibition Services Department
Harry Ransom Humanities Res. Center
University of Texas at Austin
P.O. Box 7219
Austin, TX 78713
ph: 512-471-8935
fax: 512-471-9646
kgrant@mail.utexas.edu

SAN FRANCISCO BAY AREA

In late May, the Paintings, Objects, and Textile Conservation Departments at the Fine Arts Museums of San Francisco moved into beautiful new studios in the deYoung Museum. The new museum, is designed by Herzog & de Meuron (of Tate Modern fame).

We are all happy to return to Golden Gate Park after four-plus years at our Interim location. The museum is scheduled to open to the public on October 15th. All the conservators are busy preparing the

Regional News, continued

artworks and installing the galleries. We look forward to having our colleagues visit once the deYoung opens.

Debra Evans and **Jeffrey Warda**, from the FAMSF Paper Lab, spent two weeks in May working at the University of Hawai'i Library, under the direction of , assisting on disaster recovery of rare maps. Jeffrey departed the FAMSF lab in August, bound for a Kress fellowship at the Brooklyn Museum.

The paper lab welcomes new interns **Sarah Freeman**, from the Buffalo Conservation Training Program, and **George Dietz** and **Eva Hummert**, from the conservation training program in Stuttgart.

The conservation department at SFMO-MA is thrilled to have **Amanda Hunter Johnson** return as the Assistant Paper Conservator after a year away at the Conservation Center for Art and Historic Artifacts in Philadelphia. She recently served as the conservation point person for our comprehensive Richard Tuttle retrospective and will travel with the show. We are very proud of **Paula De Cristofaro** who has won the prestigious Rome Prize. She and her family will be moving to Rome for a year in September where she will be researching Arte Povera and interviewing living artists working in that genre. We are pleased to welcome **Ria German-Carter** back to our department as the paintings conservator for the next year.

Ria will also be supervising **Marie-Chantale Poisson**, our new Fellow in Contemporary Art, during the first year of her two-year posting. Marie-Chantale comes to us from the National Gallery of Canada, where she is a paintings fellow specializing in contemporary art.

We all celebrated the marriage our current Fellow in Contemporary Art, **Gwynne (Barney) Ryan**, to Scott Ryan this past April. Gwynne has excelled in her training for care of time-based media and recently presented a paper on the topic during the General Session at AIC .

SFMOMA was very privileged to have **Paula Hobart** join our department for her "20-day option" during her third year as an objects major at the Buffalo State College. She received direct experience with the challenges of installing

contemporary art in the Richard Tuttle retrospective. **Jennifer Badger**, our very promising pre-program intern, has been accepted by NYU and will be attending this fall.

We are currently enjoying our summer pre-program intern, **Erica Cooney**, who recently moved to San Francisco after completing undergraduate studies at the University of Delaware with a major in art conservation. She is helping us to address slide storage issues, leading us to consider the eventual jump to the digital world.

Meg Geiss-Mooney (textile/costume conservator in private practice) continued in her "big is best" mode when she deinstalled a 14 feet by 20 feet (yes,

that's feet and not inches) needlepoint embroidery in a church undergoing major renovation in Chico the end of May. She discovered that this must have been the first job that the installer 20 years ago had using their new contractor's grade electric staple gun. And she reminded the church stewards that it is a needlepoint and NOT a tapestry.

Regional Reporter:

Charlotte S. Ameringer
Assoc. Paintings Conservator
Fine Arts Museums of San Francisco
deYoung Museum
50 Hagiwara Tea Garden Drive
South San Francisco, CA 94118
ph: 415-750-3645
fax: 415-750-2673
cameringer@famsf.org

Ira Katz

It is with sadness we report that on April 9, 2005, Ira Katz, the founder of Tri-Ess Sciences, passed away at the age of 89. Ira had been under treatment for cancer and his passing was peaceful and surrounded by family.

Tri-Ess Sciences was truly a Southern California institution to many people. Ira was an institution, to the many students whose science projects profited over several generations, and to the motion picture industry before computer graphics dominated special effects. Lastly, he was an institution to local conservators. He was always able to provide, and always with enthusiasm, nearly any compound, solvent, small piece of lab ware, or even sympathetic advice, no matter how small or seemingly insignificant the request.

In 1950, Ira began his first commercial venture with a hobby store. Since he had a background in research and teaching he became aware of the needs of students and their science projects. Supporting science students became a larger and larger part of the business. First in Los Angeles, then in Glendale and finally in Burbank, the business grew because small quantities of materials had no other competitive outlets. Pyrotechnics had also been a lifelong interest, and Tri-Ess Sciences in time became the major source of materials for motion picture and television special effects.

(Where else could one find gallon containers of Fake Blood while browsing for solvents. And you know, all that alien slime was really Carbopal. Ed.)

Many Southern California conservators "discovered" Tri-Ess, more or less independently, throughout the 1970s. Word of mouth spread through the 1980's and 90's. For more than three decades, Ira's daughter Kim, or long-time employee, Jan Giacomo, greeted people at the little showrooms that were an important part of the Tri-Ess culture.

Unfortunately, a number of external factors began to press in on the family-owned company in the 2000's. One of the main legs of the business, special effects, disappeared almost overnight with the advent of wide-scale computer graphics. For this reason, the decision was made in January 2005 to close the business.

Ira left this note on his web page, which serves also as a fitting conclusion to this obituary.

"I am grateful for all the wonderful people - all the bright and beautiful children I have been able to share my knowledge with, all the caring teachers that I have been able to assist, and the countless others that I have helped through the years. Parting is a very difficult thing to do and in doing so I wish all my friends the very best of everything. And thank you for your friendship..."
Jim Druzik

Membership

Chris Stavroudis, membership secretary

WAAC welcomes the following new members and very late renewals: If the new members are included in the 2005 WAAC *Membership Directory*, their full contact information is not listed below.

Claire Antonetti
3242 Morcom Avenue
Oakland, CA 94619
tele. (510) 535-1663
FAX: (510) 535-1663
EMail: claireantonetti@comcast.net
Paper; Paintings

Auckland Art Gallery
E. H. McCormick Research Library

Bonnie Baskin
833 Kensington Road
El Cerrito, CA 94530
tele. (510) 524-1302
EMail: bbaskin@juno.com
Objects Conservation

Stefanie Becker

Ulrich Birkmaier
Conservator
Wadsworth Atheneum Museum of Art
600 Main Street
Hartford, CT 06103
tele. (860) 278-2670 ext. 3136
EMail: ulrich.birkmaier@wadsworthatheneum.org
Paintings Conservator

Ted S. Burnett
727 S. Orange Grove Blvd., #2
Pasadena, CA 91105
tele. (626) 403-9840
FAX: (626) 403-9841
EMail: suesueb1@earthlink.net
Restoration of Antique Furniture (18th, 19th c)

Conservation Department
Carnegie Museum of Art

Denyl Cloughly

Kecia L. Fong
1200 Getty Center Drive
Suite 700
Los Angeles, CA 90049
tele. (310) 440-6238
EMail: kfong@getty.edu
Arch. & Archaeological Sites Conservation

Rachel Freeman
3960 Utah St., Apt. A
San Diego, CA 92104
tele. (610) 813-4317
EMail: remarqueproof@yahoo.com

Institute of Fine Arts
New York University
Attn: Daniel Biddle, Librarian
Conservation Center
14 East 78th St.
New York, NY 10021
tele. (212) 992-5854
FAX: (212) 992-5851
EMail: daniel.biddle@nyu.edu
Institutional Member

Susan B. Jackson
Harvard Art Gilding, Conservation, and Restoration

49 Littleton Country Road
Harvard, MA 01451
tele. (978) 456-9050

Erin Kelly

Steven Kern
Curator of European Art
San Diego Museum of Art
Balboa Park
P.O. Box 122107
San Diego, CA 92112-2107
tele. (619) 696-1917
FAX: (619) 232-9367
EMail: skern@sdmart.org

Sarah Kleiner
Conservation Coordinator
Seattle Art Museum
P.O. Box 22000
Seattle, WA 98122
EMail: sarahk@seattleartmuseum.org

Jennifer Koerner

Laura Kubick
1827 Elliot Ave. S., #2
Minneapolis, MN 55404
tele. (612) 813-0124
EMail: lauracathk@yahoo.com
Pre-Program Student

Molly Lambert
Architectural Conservation, Inc.
1334 Derby Street
Berkeley, CA 94702
tele. (510) 849-3811
FAX: (510) 849-3812
EMail: lambert@there.net
Architectural Materials and Sites

Yoonjo Lee

Gordon Lewis

Danielle Masters

Vanessa Muros

National Park Service
Harpers Ferry Center

Caitlin O'Grady

Ellen Pearlstein

Rose M. Rachal

Julie Reid
Balboa Art Conservation Center
P.O. Box 3755
San Diego, CA 92163-3755
tele. (619) 236-9702
FAX: (619) 236-0141
EMail: jreid@bacc.org
Paintings

Stephanie Ricke

Riegler & Son's

Bonnie Rimer

Elise Yvonne Rousseau

David Spillman

Kristen St.John

Gabrielle Tieu (note change of address below)

Piet Van Dalen

Annick Vuissoz
2009 E. Hawthorne
Tucson, AZ 85716
tele. (520) 325-1349
EMail: annick_vuissoz@yahoo.fr

Changes of Address

Please update your Membership Directory as follows:

Victoria Blyth-Hill
1354 Morningside Way
Venice, CA 90291
tele. (310) 213-1415
EMail: thangka@att.net

Scott Carrlee
EMail: AKCarrlee@gmail.com

Maria Fredericks
236 West 26th Street, #4NW
New York, NY 10001

Sarah Freeman
865 47th Avenue, Apt 6
San Francisco, CA 94121
tele. (415) 637-7051

Beth Heller
Balboa Art Conservation Center
P.O. Box 3755
San Diego, CA 92163
tele. (619) 236-9702
EMail: bethheller@earthlink.net

Tara Hornung
Conservation Center
14 East 78th Street
New York, NY 10021
EMail: tara.hornung@nyu.edu

Yadin Larochette
EMail: yadinl@gmail.com

Dana K. Senge
133 E. 46th St., #6
Kansas City, MO 64112

Gabrielle Tieu
635 Coronado Avenue, #4
90814 Long Beach CA
tele. (323) 443-4395

Julie Unruh
117 Java Street
Brooklyn, NY 11222
tele. (520) 975-5136
EMail: julie@unruh.org

Katharine Untch
Conservator
Architectural Resources Group
Pier 9 The Embarcadero
San Francisco, CA 94111
tele. (415) 421-1680 ext. 247
FAX: (415) 421-0127
EMail: katy@argsf.com

Things one might take on-site for disaster recovery

Wet vacuum
Portable dehumidifiers
Portable electric fans
Portable generator
Portable pump
Refrigerator trucks
Dry ice

Location of nearest off-site phone
Location of nearest CB radio

Portable lighting
Extension cords (50ft., grounded)

Metal book trucks or cart
Plastic (milk) crates
Sturdy boxes

Heavy plastic sheeting
Plastic garbage bags
Polyethylene bags (various sizes)
Freezer bags
Freezer or waxed paper

Portable tables
Absorbent paper
(blank newsprint, blotter, etc.)
Paper towels
Cheesecloth
A roll of paper (to cover work surface)

Plastic buckets and trash cans
Water hoses with spray nozzles
Sponges
Brooms and dustpans, mops, buckets

Hard hats
Rubber boots
Rubber and/or plastic aprons
Gloves (rubber/leather)
Protective masks/glasses
Emergency funds
First aid kit
Flashlights

Photographic equipment/supplies
Disposable camera

Scissors and tape
Monofilament (fishing) line
Clipboards, paper, pens, markers
Filament tape,
Masking tape
Electrical tape

Construction materials
(wood, screws, nails)
Ladders
C-clamps
White chalk
Crow bar

Electrical socket adapters (3 prong)
Hammer
Knife
Utility knife
Rubber mallet
Diagonal cutting pliers
Slip joint pliers
Slotted screwdriver
Phillips screwdriver
Tape Rule, 100'
Cotton twine

New facilities assure production of MS2A Reduced Ketone Resin for Painting Conservation

In a WAAC Newsletter article from May 2000 Vincent Routledge let us know about "The Development of MS2A Reduced Ketone Resin in Painting Conservation." MS2A is produced as yellow granules having a high solubility (50%w/w) in mineral spirit (white spirit). The high solids, low viscosity varnish, which appears colourless once applied as a thin film, rapidly reaches gel (no flow) point. As a chemically reduced ketone resin, the main colour forming bodies have, in effect, been removed. In practice microcrystalline wax (Cosmolloid 80H) or bleached beeswax have been incorporated into MS2A varnishes to enable gloss to be modified across the extremes, from total saturation to almost unvarnished appearance. (For more details on "Preparation, Application, and Properties of MS2A varnishes" see *WAAC Newsletter*, Volume 22 Number 2.)

Linden Chemicals continues to supply conservators with MS2A. Though, note their new contact information, in Portugal: Vincent Routledge, Linden Chemicals, Urb Solferias, Lote 9, Carvoeiro, Lagoa, 8400-527, Algarve, Portugal. New Tel/ Fax (011 / 351) 282 357 202, and e-mail: landv@oninet.pt.

Oh No! Ethnobotany: The safe handling and storage of hazardous ethnobotanical artifacts

A four-part program including written hazard communications, ethnobotanical material safety data sheets (EMSDS), labels, and other forms of warning and training.

Ethnobotany can be defined as the study of how and why people use plants in their local environments. It is the scientific

study of the relationship between people and plants. Most commonly ethnobotany refers to the study of indigenous uses of plants as medicine, food, natural resources, clothing, and ritual.

The Oh No! Ethnobotany project is a pilot program that can potentially help museums and other natural history collectors provide safer places for both work and research. Oh No! Ethnobotany, is a hazard communication-training program that addresses health and safety issues inherent in the handling and storage of hazardous ethnobotany. It was designed and developed by Rose Kubiatiowicz and prototyped at the Science Museum of Minnesota. The program looks beyond the wide range of residual toxic chemicals present from the treatment of an ethnobotanical artifact. It specifically addresses concerns raised by toxic chemicals inherent in the object itself.

Ethnobotany material safety data sheets (EMSDS) are modeled after material safety data sheets (MSDS). However, the EMSDS is applicable to the museum situation and fills a unique need that specifically addresses the use of hazardous ethnobotanical objects. To view all twelve EMSDS developed thus far, use the website of the University of Minnesota: tc.umn.edu/~kubi0029/emsds.htm.

Find the specific outline of the Oh No! Ethnobotany program developed by Rose Kubiatiowicz, including a short survey of hazardous ethnobotany at: kubiatiowicz.com/Oh%20No!%20Ethnobotany. This link includes a description of policies and procedures for hazard communication, labels and other forms of warning, accessibility of information, and training. You also have the chance to download a template to create your own specific EMSDS.

The program was supported by the Society for the Preservation of Natural History Collections (SPNHC). It was published in Spring 2003: Kubiatiowicz, R. and L. Benson. 2003. Oh No! Ethnobotany: The safe handling and storage of hazardous ethnobotanical artifacts. SPNHC, Collections Forum 18(1-2): 59-73.

The link below will take you to a PDF of the paper by Rose Kubiatiowicz and Lori Benson. spnhc.org/documents/CF18/cofo_18_104_59_73.pdf. Rose is happy to answer any questions. She can be reached via email at: kubi0029@umn.edu.

As I write this, Hurricane Katrina struck the Louisiana, Alabama, and Mississippi coast a week ago. One hopes, as you read this now, the news has improved. One also hopes, this fiasco will drive home the importance of preparation for disasters – Federal, State, local and individual.

For those who have volunteered to help with the cleanup

First, we need to remember that conservators are not first responders. We shouldn't have to take any major risks to do our jobs. Lives are not at stake. After art and historic artifacts have been sitting around for a month or more, a few days or even weeks to make sure that everything is safe for us won't make that much difference in the outcome of which works can be salvaged.

If you might be called upon to work in the area post disaster, you need to begin preparations immediately. As soon as possible, see your physician and get the first Hepatitis A vaccine, a Tetanus booster¹, and have yourself medically certified for wearing a respirator. Discuss other medical problems you have with your health care provider, as well. If you have a compromised immune system or chronic medical condition, like asthma, you should probably not participate in the initial phase of cleanup.

Shots

Because the water was commingled with sewage, you should get a Hepatitis A vaccination². The immunization is a course of two injections. The first shot should be taken four weeks before potential exposure to the pathogen for maximum protection. The second is taken 6 to 12 months after the first. After both injections, immunization should last for at least 8 years, possibly 20 years and perhaps for the rest of your life.

If you haven't received a Tetanus³ booster in the last 5 years (or 5-10 years, according to some), you should get that immunization bolstered before coming in contact with the mud and muck.

As events unfold and diseases break out, there may be some further prophylactic precautions to add to the list. But, by all means, get those first shots immediately.

Getting the Hepatitis A vaccine can be a little difficult. Most doctors' offices don't have it on hand. Try a public health department or get a referral to a hospital from your doctor. I got both shots (Hep A and Tetanus) for the cost of the shots (\$109 after a 10% discount for disaster volunteers) from the hospital recommended by my doctor. I also checked at a closer hospital and they wanted \$135 for a consult plus the cost of the shots. (None of this is covered by insurance.) Beverly Perkins (past WAAC President) got her shots at a county health clinic for \$87.

Personal Protection

The minimal respiratory protection against mold and mold spores is HEPA filtration. In respirators, that corresponds to cartridges/masks designed to filter particulates with a 100-series designation, most commonly P100 or N100.

I would recommend, however, getting the new Multi-Contaminant cartridges (designed for first responders) that combine P100 filtration with filtration for organic vapors, sulfur dioxide, chlorine, hydrochloric acid, ammonia, formaldehyde, hydrogen fluoride, and hydrogen sulfide (for escape only) among others. I would think that these would remove any disturbing odors that would easily pass through the P100 HEPA filtration.

Often, when we wear respirators, it is to avoid nuisance exposure like a bit of stinky solvent. These may be situations where a respirator is not legally required. However, in the cleanup of the aftermath of Katrina, (and, as should have been the requirement after 9/11) solid respiratory protection is needed. This means that wearers must be trained in the use of the respirator and that respirators must be fit tested. Before getting a fit test, a conservator must receive medical clearance to wear a respirator from a medical professional.

If you are going to volunteer, it would be easiest to get your medical approval well in advance when you get your shots. Getting fit tested in advance would be good, too, but I would hope that that could be done on site.

The fit test⁴ for a respirator includes these components: Medical certification to wear a respirator. Education on respirators: how they function, what protection they can and cannot provide, how to put them on and take them off, how to clean them, etc. And the, finally, the actual fit test, to make sure that the respirator you are wearing fits your face properly and can provide the protection it is designed to provide.

The Medical certification process is quite simple. There is a form for the respirator user to complete provided by OSHA (the US Occupational Safety and Health Administration), technically the "OSHA Respirator Medical Evaluation Questionnaire (Mandatory). - 1910.134 App C." (A pdf version of this form can be downloaded from the AIC website from http://aic.stanford.edu/health/guides/OSHA_Med.html.) The completed form is taken to your PLHCP (government-ese for "physician or other licensed health care provider") who reviews the information you have provided. The PLHCP may ask additional questions or recommend additional tests (such as spirometry) and either agrees that you are medically fit to wear a respirator or decide that the burden on your body would be too great for you to wear one safely.

The AIC Health and Safety committee has created a form for your PLHCP to fill out stating that you are medically fit to wear a respirator. That way you don't have to disclose your personal health information to anyone after your PLHCP has given the OK. This form is an additional form to the OSHA form, and effectively serves as a cover sheet or summary form, and is available on the AIC website at: <http://aic.stanford.edu/health/guides/POLHCP.html>.

What type of respirator should you use?

Conservators are most familiar with the half-mask respirator (which covers just the nose and mouth). If this is your choice, you must wear eye protection when working in the cleanup environment.

There is the famous tale of Kathryn Hepburn falling into a canal in Venice for a scene in the movie *Summertime* and spending the rest of her life with a recurring eye infection. (Thanks AIC H&S committee member Mary Ballard for this.)

So, it is critical that eye protection be used. The greatest risk is probably inadvertently rubbing your eyes with a contaminated (gloved) hand. I would recommend goggles that are indirectly vented and held on the head with a strap. These can be worn over glasses. The goggles also have to be designed to work with half-mask respirators.

Because we want eye protection, as well as respiratory protection, we might want to consider other options. Either a full-face respirator or powered air purifying respirators (PAPR) might be a better solution for decontamination. The full-face respirator is the less expensive option, but is only an option if you don't wear eye glasses.

Full-face respirators cover the entire face (duh!). They are configured such that air is drawn in through the appropriate cartridges, into the face plate (to help prevent fogging and make for a more comfortable experience) then into a nose/mouth cup and on into the lungs. On exhalation, the air is discharged through a valve on the nose/mouth cup (similarly to a half-mask respirator). Valves on the nose/mouth cup prevent the exhaled air from entering the face portion of the mask.

The full-face respirator is held securely on the head with five straps – two on each side and one on the top. It's not as uncomfortable as it looks and sounds, but it isn't like a day at the spa, either.

I've written about the 3M PAPR system in a previous column (*Newsletter* 26/1 (January 2004), p. 8). In short, this consists of a blower unit and battery that is worn on a belt. The blower pulls air through the appropriate cartridges and blows it through a tube running up your back to the head piece. I am most familiar with the helmeted head piece with face shield. (It looks something like an Imperial Storm Trooper from *Star Wars*.)

The filtered air is blown up over your head (offering a modicum of cooling comfort) down across your face and to your breathing zone. Enough air is supplied that even when inhaling, there is positive pressure behind the face shield. The face shield is fitted to the face with Tyvek and elastic gussets.

The PAPR and helmet offer a number of advantages and disadvantages. The major disadvantage is that they are expensive. Their advantages are: they can be used with beards or facial hair that would not otherwise allow a good fit with a half-mask or full-face respirator. They are the respirator of last resort for people that can't get a good fit with other types of respirator. They can also be used with glasses. The helmet offers the same protection as a hard hat. The face shield protects the face as well as eyes. However, the helmet and face plate impede close visual inspection and preclude the wearing of a magnifier (like an Opti-Visor).

Boots

All responders should bring appropriate foot wear to the task. Rubber boots are a must. You can use either rubber overboots over conventional work boots (with steel toes and shanks) or use over-the-sock rubber boots that have steel toes and shanks. This is the minimum for decontamination work.

Cathy Hawks, ex-officio AIC H&S committee, sent this bit of advice: "The rubber boots are not for wading in water, they are to protect your skin from parasites, etc. in mud and debris. If you wade in any standing water, it is prudent to carry a long, wooden stick. Prod before you step. It is also prudent to be wearing a life vest. Hopefully, no one will be wading anywhere, but wherever they go, no one doing salvage should assume that their tennies will protect their feet."

Depending on the depth, you might need hip waders. Some of these are designed with an extra feature to prevent the mud from pulling the boots off of your feet as you walk.

Another thought: Since you are buying these special boots, you might want to pick-up a pair with the additional safety feature of being electrically insulating (the boots are yellow). A conservator should not be working in an area where there is a risk of electrocution, but it might be worth buying this type of boot anyway. (Thanks to Jane Hutchins, another former Board member, for this suggestion.)

Gloves

I would recommend having both a box or two of thin nitrile gloves and a pair or two of heavier gloves. I would avoid the use of latex gloves. There will be plenty of allergens taxing your system. Why add latex to the mix?

Wearing double (one pair on top of the other) thin nitrile gloves gives better protection than a single glove and is still not as bulky as heavier gloves.

More things to bring with

Cathy Hawks sent out this list of items to bring to a disaster:

1. A copy of your immunization records.
2. A supply of all prescription medicines you take or might need.
3. A first aid kit. (Bring your own - don't be a burden!)
4. Gloves – see above.
5. Safety goggles – see above.
6. Rubber boots – see above.
7. A fit tested respirator and appropriate cartridges – see above.
8. A hard hat – unless using a PAPR with helmet.
9. Various means to purify water – see below.
10. Antibacterial wipes or hand-cleaning solutions and creams. (Those that pass as cosmetics will not raise questions during travel on planes.)
11. Antibacterial shampoo and soap.
12. DEET based insect repellent and sunscreen.
13. A list of suppliers of H&S equipment.

Health and Safety, continued

Drinking Water

For conservators to do their work, I would hope that there will be a good supply of water for cleaning. The water will have to be filtered at the very least, preferably, deionized.

However, this does not mean the water is potable. Unless told by public health officials that water is safe to drink, all water must be treated before consumption. Boiling water to sterilize it or treating it with bleach or iodine pills are the most common emergency treatments. There are also the newer personal filtration devices used by campers and world travelers.

Each has advantages and disadvantages. All must start with fresh water that is not contaminated with dissolved toxins. Nothing short of distillation (or reverse osmosis) can remove salt from sea water or dissolved toxins from tainted water.

Always start with clear water. If it is not clear, strain or decant the water before anything else.

Boiling water (rolling boil, minute at sea level, 3 minutes at elevation) will kill bacteria, viruses, and parasites⁵. It will also remove volatile organic contaminants. (It also can concentrate non-volatile contaminants and salts.) Allow the water to cool completely before drinking. Pouring the water back and forth between two clean containers after it has cooled will re-oxygenate the water and make it taste better.

Iodine pills and chlorine disinfecting methods kill many, probably most, but not all water based pathogens. Cysts can survive either treatment, and there is a small chance that you could become seriously ill from a parasitic infection. Chemical disinfection of water is truly an emergency measure and should be available but not relied upon by the disaster responders. By all means bring a bottle of iodine pills, but one hopes you won't need to use them. Iodine generally works better than chlorine. However, people allergic to iodine or shellfish or who are pregnant or have thyroid problems should avoid this method⁶. (Adding a small amount of vitamin C to iodine treated water makes it taste much better. Only do this after the water has finished the purification cycle with the iodine.)

Filtration removes contaminants based on their particle size. There are a number of camping filter systems commercially available. These work best against cysts, and the better ones also eliminate bacteria. Something more is required to remove or kill viruses, however. This can be done by passing the filtered water through a bed of Iodized resin, or treating the filtered water with a chlorine based disinfectant to kill any viruses present. MSR, a mainstay in backpacking gear, makes the SweetWater Purifier System that includes a pump and filter system and the chlorine based purifier solution⁷ (about \$75).

I've used the First Need Deluxe Water Purifier (manufactured by General Ecology, Inc.) for hiking. This unit has a proprietary filter that has been shown to be effective against cysts, bacteria, and viruses⁸. It uses a non-chemical system and also incorporates a charcoal filter to remove "aesthetic" contaminants. The deluxe purifier system costs just under \$90.00. A replacement filter costs about \$40.00.

To summarize, if you wish to help in the salvage operations you should do the following. In the short term, volunteer by emailing info@aic-faic.org. Get your vaccines. Get medical approval to wear a respirator. Talk with your doctor. Make a monetary donation to help the victims and a donation to help with the preservation efforts. In the month that follows, prepare. Gather materials. Find what sort of respirator is recommended and think about your own personal preferences. Also entering into the equation is what type of work you would volunteer be doing. One presumes that there will be teams removing cultural materials and teams working at makeshift treatment and triage facilities. Assemble your supplies both for treatment and those listed above. Even if you are not called upon to help in person, it is a good idea to have all of these materials on hand.

Personally, I've already sent an email. I've had the shots. I've already got my medical ok for wearing a respirator and have been fit tested (at the AIC Meeting) for a half mask respirator as well as a full-face respirator (read on below). I also have access to the PAPR helmeted system I mentioned. I'm going to buy a new cartridge for my First Need Water Purifier and order some more gloves. If I'm asked to help, I'll order the boots.

Now For Something Almost Different – Full Containment

Conservators are not often required to work under full containment conditions. However, I think we may be called upon to work in these conditions more and more in the future. What follows are my experiences and observations following a recent full containment project.

Donna Williams (yet another former Board member) and I were asked to clean a mural and stained glass window in a contaminated space. The contaminant was a known human carcinogen so fairly stringent entry and exit requirements were established by the industrial hygienists (IHs) responsible for the project. The site management, work plans and IH management were developed by Mack Zardkoohi, and others, at Forensic Analytical (www.forensica.com).

The nature of the contamination was such that a team of IH professionals had to establish a fully isolated environment, and workers were required to use extensive personal protection and decontamination procedures to ensure their safety. Because of a non-disclosure agreement, I can't discuss any specifics. However, I would like to share some of the oddities of working on this sort of project.

We were required to wear full-face respirators, full body Tyvek suits (with booties and hoods), and gloves. The gloves were to be taped to the Tyvek suit with duct tape. Entry to the space was through a polyethylene sheet airlock. The entire space was under negative pressure thanks to a battery of air scrubbers which filtered the interior air of both particulates and organic vapors and exhausted the clean air to the outside. Leaving the space required we follow a specific procedure for removing our personal protective equipment and a decontamination shower. We obtained our medical screening from our own doctors (and used the AIC form, mentioned above, to convey their approval) and were fit tested on site by an IH there.

Suiting up

Because anything worn into the contaminated space needed to be washed before exit, we were instructed to wear only Speedo type swimsuits and washable beach shoes on our person. (Me in a little blue Speedo is not a pretty picture.)

We then donned our Tyvek suits. Feet first, then arms, then zip up the front. We found that wearing a too large suit was good to allow greater freedom of movement. However, in a too large suit, the crotch tends to drop down too low, risking tears when climbing scaffolding. A bit of duct tape on the sides of the suit solved this problem – either by taping around a gathered handful of suit, fashioning a belt, or making mini- side-suspenders. If you use a duct tape belt, make sure that it is easy to open when un-suiting later.

We also found the zipper under the chin to be very uncomfortable. Again, duct tape to the rescue. First make a tab by folding the end of the tape onto itself then tear off a short piece of tape. Tape from the inside of the suit over the zipper with the tab outward. This was much more comfortable and also prevented the zipper from creeping down.

At this point, we tore some strips of duct tape, about a foot and a half long, folded one end over to make a tab, and put these somewhere for easy access later.

Next we fitted fresh respirator cartridges to our full-face respirators, donned the respirators and performed the two leak tests: Inhalation – block the filter inlets with your hands, inhale and make sure that air does not leak into the mask. Exhalation – block the exhalation port and gently exhale to make sure that the mask pushes away from your face without leaking. (This procedure is reviewed when the respirator is fit tested.)

We then pulled the Tyvek hood over the respirator.

Last, we put on the gloves. We eventually found that two pairs of thin nitrile gloves were the best protection and still offered the dexterity to do our work. The first pair of gloves are put on, and those strips of tape we prepared earlier are used to tape the glove to the sleeve of the Tyvek suit. This is tricky as the tape can stick to the glove. It was best if someone else does it. One also does not want to wrap the tape too tightly – fingers turning blue is to be avoided. Keep the tab on the end of the tape handy. This will really help when disrobing.

If you are in a wet area, you want the sleeve to cover the glove. If you are immersing your hands in liquid, you want the glove to cover the sleeve. In our situation, it didn't really matter but I think I preferred having the sleeve cover the glove. We then put on our second gloves. I also found it useful to have a few extra gloves in a zip-loc bag taped to the outside of the Tyvek suit.

All Dressed Up and Only One Place to Go

So, we entered the work area. Completely covered. No drinks of water. No potty breaks. No mopping the sweat from our brows (or rather getting it off my nose as it came dripping down my face – of course this all happened in the hottest week of the summer).

Once inside the contained area, most workers donned work boots over their Tyvek booties. We just padded around in

our booties (with the water shoes underneath). A tip which I learned after the fact is to place a strip of duct tape over the soles of the Tyvek suit.

I couldn't wear my glasses under the full-face respirator. Fortunately, I'm near sighted so I could see what I was doing. I just couldn't tell what I had done when I stood back.

This is a very odd experience. Communication is difficult. It's somewhat difficult to climb scaffolding in this get up. It is easy to get over heated, disoriented, and to feel claustrophobic. You might even face a bit of a panic attack the first time you enter a site dressed like this. Take it easy while working.

Decontamination

After we had marinated for as long as we could take it, were thirsty, and had to go, we could finally leave the containment area.

After cleaning up our worksite (all tools stayed in the (contained area), we exited the contained area through polyethylene sheet air locks. For reasons of modesty, males and females went through decontamination separately.

In the first room, the contaminated side, one first removed the tape securing the gloves to the Tyvek suit followed by the tape at the top of the zipper. Pulling back the hood you make a point to turn the Tyvek suit inside out as you unzip and slip out of the sweet soaked rag that was your Tyvek suit. The suit is discarded. The cartridges are removed from the respirator while still wearing it and are discarded. Next the gloves come off, turning them inside out and disposing of them in the trash, too.

With the respirator still being worn, but without cartridges, one steps into the decontamination shower. The IHS had specified the soap and shower procedure. First you soap up your head and the exterior of the respirator. After rinsing, the respirator is removed and you wash your head again and the rest of your body, including the Speedo and water shoes and rinse.

You step out of the shower and into another portion of the air-lock system to dry off. Disposable wipes are used to dry off oneself and the respirator. The used wipes are passed through the shower into the contaminated side of the air lock and gingerly discarded with the other contaminated waste.

Then you emerge, drink fluids, use the restroom, and thankfully contemplate the fact that you don't do this everyday.

Chris Stavroudis is a conservator in private practice.

Footnotes

1. Document from Department of the Interior – source: email from AIC office 9/7/05.
2. The CDC is currently not recommending the Hepatitis A vaccine (see www.bt.cdc.gov/disasters/hurricanes/katrina/immunizationqa.asp). My opinion: CDC is not recommending the vaccine in part because it takes 2 weeks for the vaccination to have any effect and 1 month for it to have full protection. This is impractical for first responders. However, conservators will be coming later and will likely be handling materials that may be contaminated with untreated sewage. Consult with your doctor to see if they recommend this vaccination.
3. Tetanus and diphtheria toxoid (receipt of primary series, and Td booster within 10 yr.s) per CDC www.bt.cdc.gov/disasters/hurricanes/responderimmun.asp.
4. See US Department of Labor - Regulations (Standards - 29 CFR) Respiratory Protection. - 1910.134
5. CDC "Keep Food and Water Safe after a Natural Disaster or Power Outage" www.bt.cdc.gov/disasters/pdf/foodwater.pdf (accessed 9/14/05)
6. www.cdc.gov/travel/water_treatment.htm
7. Manufacturer's website: www.msccorp.com/filters/sweet_system.asp
8. Gerba, C.P. and Naranjo, J.E.; Microbiological water purification without the use of chemical disinfection", *Wilderness and Environmental Medicine*, 11, 12-16 (2000). from website: www.generalecology.com/wemedmag.pdf (accessed 9/14/05)

MOLD

A Conservator's Very Basic Mold Primer

from a very long conservation with Hillary Kaplan, 9/8/05

- **Mold can be anywhere**—it doesn't confine itself to certain materials, but certain conditions are most favorable for growth
 - **Moisture**
 - **Oxygen**
 - **Nutrients**
 - **Stagnant air** (allows undisturbed growth to flourish)
 - **Temperature** (impact varies with type of mold)
 - Mold can grow at temperatures near freezing.
 - Light will not inhibit growth.
 - Mold is directly linked to the air's moisture content, relative humidity.
- **Mold spores are everywhere.** We need not wonder if mold is in our environment, but be concerned if there is sustained growth.
- **Freeze to stop growth and buy time, but do not refrigerate.**
 - Objects take up moisture much more quickly than they release it.
 - Simply lowering the temperature without freezing raises the relative humidity and will introduce more moisture.
- **Addressing an outbreak:**
 - Ascertain that mold is present, not dirt or staining--mold digests nutrients and discharges byproducts seen as "staining."
 - Ideally, if possible, correct the source of the problem in the larger environment that led to mold. For large scale outbreaks, pre-conditioned, dehumidified incoming air and negative pressure HEPA-filtered outgoing air are needed to avoid contaminating other spaces and facilitate drying.
 - Consider:
 - Size and extent of the outbreak
 - State of mold
 - Active = wet and slimy; needs to be dried to be removed
 - Dormant = dry and powdery
 - Human resources
 - Financial resources
 - Technical knowledge and expertise
 - Nature of damaged items
 - Set priorities for response:
 - Immediately freeze to later dry and clean
 - Freezing does not kill, it just "buys time"
 - Dry if active mold present
 - Clean if dormant mold present
- **Health Issues:**
 - Treat all mold as potentially hazardous, as it can be for those hypersensitive to it.
 - Whether "dead" or "dormant" does not matter.
 - Products effective for eradicating mold also pose problems for the materials themselves, and/or for human safety.
 - Limit the amount of time spent cleaning for reasons of ergonomics, respiratory stress, and fatigue.
- **Level of Clean:**
 - Cleaning can begin once mold is dry.
 - There are no standards for protocols for cleaning mold.
 - Cleanliness will depend on the level of clean one can accept.
 - There may still be activity beneath the surface and on the surface of a porous material. It is nearly impossible to remove mold from hair.
 - Goal of cleaning is to offer gentle, yet effective removal.
 - Avoid driving mold further into a porous surface.
 - Avoid inadvertent cross-contamination.

-
-
- **Transport:**
 - Use paper to isolate mold-damaged items in transit.
 - Plastic can be used for short-term containment taking care not to create a micro-environment inside the enclosure that will result in additional mold growth.
 - Use plastic for disposal.

 - **Removal:**
 - The most effective means of removing dry mold is to vacuum into a HEPA fitted vacuum (e.g., Nilfisk).
 - Ideally, remediation occurs inside a properly vented fume hood—one designed to accommodate mold particulates, by a practitioner outfitted in appropriate personal protective equipment. Should this not be possible, consider working outdoors, upwind of the object. If no HEPA vacuum is available, brush or place ordinary vacuum exhaust in the direction of outdoor wind.
 - It may be possible to photocopy records to preserve the information present.
 - Quarternary ammonium salt solutions may be used to clean surfaces, shelving, and flooring. Do not use on the objects.

 - **Summary**
 - Moisture drives all mold growth; all moisture problems can become mold problems.
 - Dead does not matter; allergens and toxins remain.
 - Size does matter; larger areas of contamination require greater containment.
 - Health effects remain incompletely understood.

Excerpts from:

Disaster Preparedness Workbook for U.S. Navy Libraries and Archives

(from the draft currently under revision) 1998 by Lisa L. Fox, revised 2005 by Beth Patkus, under the direction of Robert E. Schnare, Library Director, Naval War College Library

Response Procedures: Minor Mold Outbreak in the Collection

Spores of mold and mildew are found almost everywhere, but they require the proper conditions (moisture, nutrients, temperature, and often darkness or dim light) to proliferate. Media such as paper, cloth, leather, and adhesives may be consumed or stained by many types of mold.

The most critical factor in the development of mold is the moisture content of the materials on which the mold is growing. High moisture content is most often the result of high humidity or of dampness/wetness of collections. In the case of flood or other water damage to a building, furnishings, and/or collections, experience has shown that mold will “blossom” within 48 to 72 hours if action is not taken. Wet collections must be dried or frozen within that time, and buildings must be dried out. General cleanliness and the removal of dust and dirt reduce the risk of infestation, and good air circulation can be helpful in avoiding a mold outbreak (although air circulation should be limited once mold has occurred, to avoid spreading mold spores).

Even small amounts of mold can be a serious health hazard to staff and patrons. There are no federal or state regulations that govern exposure to mold, as there are for exposure to asbestos and other hazardous substances. It is impossible to specify “safe” or “unsafe” levels of exposure because the

effects of mold will differ depending on the type of mold, the level of exposure, and the susceptibility of the person(s) exposed. Some people are more sensitive to mold than others, and even people who do not have a sensitivity to mold can develop one very quickly, with very little exposure. It is best to “assume the worst” and proceed with caution.

Mold must be dealt with promptly, and in a manner that safeguards everyone’s health. Under no circumstances should staff members work with moldy collections unprotected. A dust mask does NOT provide sufficient protection; an appropriate and properly fitted respirator must be worn. More information on the use of respirators is provided in Appendix D2, but the bottom line is that unless you have someone on staff that has been or can be fit-tested with a proper respirator, you should not clean mold in-house.

Cleaning Moldy Collections

In the case of office buildings and homes, it is generally recommended that mold-infested materials like books and papers be discarded—but for libraries and archives, the cleaning of valuable or unique collections will be a priority. It is important to ask, however, whether or not the mold-infested materials need to be retained. Can items be discarded or replaced? For those items that must be retained, the focus should be on removing mold while avoiding contamination of collections that are not affected.

During the cleaning process, it is very important to document everything that is done (e.g., which materials are infested, the type of mold, the environmental conditions, the location of objects in temporary storage, the drying and cleaning methods that are used), since all of this information will be helpful if there is a recurrence of mold later.

It is also important to prevent cross-contamination between items and high levels of mold spores in the work area:

- Do not handle objects unless absolutely necessary, as handling dislodges spores into the air
- Place objects in polyethylene bags during transport to the area where they will be cleaned
- Reduce air movement in the work area
- Wipe worktable surfaces periodically with disposable cloths, using a detergent solution, 70% ethyl alcohol, or a dilute bleach solution
- Clean all tools, gloves, and respirators frequently during cleaning of objects
- Place the object to be cleaned on a clean piece of paper, and when finished fold the paper into itself and dispose of it
- When vacuuming, ensure that the vacuum exhaust does not cause air movement within the room; it is best to use a fume hood or to exhaust the vacuum to another room if possible
- Place cleaned dry objects into polyethylene bags immediately to ensure they are not contaminated further
- Dispose of vacuum bags, filters, and disposable protective clothing carefully, sealing them in plastic bags to minimize spreading of spores.

Remove mold only with a vacuum that contains a HEPA filter. Do not use a wet/dry vacuum; vacuums that filter air through water will not capture small particles of mold; they will be exhausted into the air. Even if the wet/dry vacuum contains a chemical to kill the mold, the dead spores that are expelled are still dangerous.

Do not vacuum fragile items directly, as the suction can damage them. Cover the vacuum nozzle with cheesecloth or screening to avoid picking up small pieces of the items. Papers or other flat items can be vacuumed through a plastic screen held down by weights. Boxes can be vacuumed directly. Remember not to clean active mold, since this may cause it to smear and embed into the item. Mold must be dormant (dry and powdery) before it can be vacuumed.

Before collections are returned to the shelves, the shelves must be cleaned (either with a detergent solution or a fungicide such as diluted bleach, if necessary) and thoroughly dried to ensure that moisture will not cause additional mold growth. The area will need to be monitored routinely to ensure that the humidity remains at safe levels.

Addressing a Serious Mold Problem

A serious mold problem is one that affects a significant portion of the collection and/or involves both the collection and the building. This type of situation almost always requires the assistance of an outside vendor (preferably one that has worked with cultural institutions before) to perform the mold remediation. This section is meant to provide a basic familiarity with remediation procedures and to facilitate the process of working with a vendor.

Although there are no federal or state regulations governing mold remediation, useful guidelines for dealing with a mold problem have been developed by several agencies and organizations. These include: the New York City Department of Health and Mental Hygiene's Guidelines on Assessment and Remediation of Fungi in Indoor Environments, and the Environmental Protection Agency's Mold Remediation in Schools and Commercial Buildings. These resources and others cited in Further Resources at the end of this appendix provide detailed information on procedures for mold remediation. Vendors used for mold remediation should be familiar with these guidelines and proceed according to their recommendations.

Choosing a Vendor for Mold Remediation

It is important to be aware that some water damage and mold recovery vendors may not understand the particular needs of library and archival collections. If it is possible to choose a vendor with experience in recovering library and archival collections from water damage and mold, you should do so.

If you choose to hire a vendor with less experience, you will need to ask a variety of questions to ensure that the work is done properly. Most of these vendors will provide supervisors, but the rest of the workers will be hired for the job. Thus, they will have little experience in cleaning mold and they will not know much about your collections and their needs. What will the ratio of supervisors to workers be? How will workers be trained? Are the workers properly insured? What health precautions will be taken for the workers? What techniques will they use when cleaning? Do they correspond with those described in the section on cleaning above? Can they provide you with a demonstration?

Further Resources

Chicora Foundation web site, Mold section. At www.chicora.org/mold.htm.

Program Leaflet Number 5. Atlanta, GA: Southeastern Library Network, 1987 (revised and updated 2001). www.solinet.net/preservation (click on Preservation Publications).

United States EPA, Indoor Air-Mold, www.epa.gov/iaq/molds/. Basic overview of mold issues, plus links to other resources.

Health Canada, Fungal Contamination in Public Buildings: Health Effects and Investigation Methods. 2004. www.hc-sc.gc.ca/hecs-sesc/air_quality/generalpubs.htm.

United States EPA, Office of Air and Radiation, Indoor Environments Division, Mold Remediation in Schools and Commercial Buildings. EPA 402-K-01-001, 3/2001. www.epa.gov/iaq/molds/mold_remediation.html.

NIOSH, Building Air Quality: A Guide for Building Owners and Managers. 1991. www.cdc.gov/niosh/baqtoc.html. A guide to diagnosing and resolving indoor air quality (IAQ) problems. Appendices on measurement of IAQ; HVAC systems and IAQ; and moisture, mold, and mildew.

New York City Dept. of Health, Bureau of Environmental & Occupational Disease Epidemiology, Guidelines on Assessment and Remediation of Fungi in Indoor Environments. 11/2000. www.ci.nyc.ny.us/html/doh/html/epi/moldrpt1.html. Not specific to library collections, information on health risks of mold exposure, environmental assessment, and procedures for cleanup of mold-infested buildings.

Salvage Operations for Water Damaged Archival Collections

by Betty Walsh

The following article is a reprint from the May 1997 WAAC *Newsletter*. It was the salvage section of the disaster plan for the British Columbia Archives in Victoria, Canada. The plan did not anticipate the severe hurricane conditions of the Gulf Coast and the aftermath of contaminated water, mold, and prolonged lack of services. I've added the following advice on the basis of the literature. In real life, this is a starting point for a lot of improvisation.

Above all, look after your health and safety. Read Chris Stavroudis' article. Consult with safety experts. Make all of the appropriate precautions.

Packing and moving

Isolate wet and contaminated collections.

If drying and freezing will be delayed: Cover with paper to prevent mold spores from spreading. Polyethylene bags will keep in the moisture and worsen the mould growth.

If the collections will be immediately dried or frozen: Pack the boxes inside polyethylene bags while transporting them.

Packing and recovery precautions

Wet and mouldy materials

Paper materials: Air dry before further treatment. This will stop the mould from growing and allow the mold to be vacuumed away. The mold is still growing if it smears.

Photographs: Air dry before further treatment. Do not wash moldy photographs because the gelatin binder layer may dissolve.

Magnetic media and CD's: Follow the drying and mold removal instructions in CCI Technical Bulletin 25.

Wet and dirty materials

Paper: Dry paper materials before cleaning them.

Photographs: Rinse prints and films to prevent dirt from setting into the surface. Test before cleaning, and proceed with caution. Extended immersion may cause the binder to swell and dissolve. Mould may have digested the binder layer.

Magnetic tapes and diskettes: Rinse with distilled water to remove sea water and contaminants. The salvage article recommends tap water. This was an option for the Archives in the 1990's, when we didn't have 8 mm video, digital video or digital data tapes. Recent high-quality tapes are on Metal Particle (MP) or Metal Evaporated (ME) tapes. Tap water will damage them. Keep the tapes in distilled water until they can be cleaned and dried.

CD's: Rinse with distilled water. Keep in cool, distilled water until salvage is possible. Follow the washing and drying instructions in the article.

Air drying mouldy materials

Seek out laboratory space. Air dry mouldy materials in a fume hood or Class 1 Biological Safety Enclosure.

If laboratory space is not available, consider the alternatives. If only a few items are mouldy, the Canadian Conservation Institute recommends setting up a room for drying and cleaning. The drying room should be isolated from other collections, and ventilated with open windows.

As a last resort, dry and clean the materials outdoors. CCI recommends doing it in clear weather, away from people and the building air intake.

Make sure you are following all of the appropriate safety procedures. Wear the appropriate personal protective equipment.

Set up the work area with tables that can be cleaned. At all times, keep wet and mouldy items away from the uncontaminated ones.

Dry the collections, without spreading the mould around. The CCI recommends laying tissue over the objects. Circulate the air with fans aimed away from the materials that are drying.

After the mouldy materials are dry, pack them prevent mold spores from spreading. Paper is said to prevent mold from escaping, while letting air circulate. Polyethylene bags are a good barrier, but monitor for a damp micro-environment within the bag. Consult with the appropriate safety authorities.

Removal of mold

See the accompanying articles and the references below.

The following useful articles are worth downloading or acquiring before you enter the disaster zone.

Mold resources:

CCI. Mould Outbreak: An Immediate Response. A great starting point. www.cci-icc.gc.ca/headlines/mould/index_e.aspx

Guild, Sherry and Macdonald, Maureen. Mould Prevention and Recovery: Guidelines for Heritage Collections. Technical Bulletin 26. Ottawa: CCI, 2004. An excellent guide for mold prevention, safety, and recovery. Available from the CCI Bookstore, www.cci-icc.gc.ca/bookstore/index-e.cfm

New references:

Image Permanence Institute. A Consumer Guide for the Recovery of Water-Damaged Traditional and Digital Prints. Rochester: Image Permanence Institute, 2004. www.imagepermanenceinstitute.org/sub_pages/waterdamage.pdf

Iraci, Joe. Disaster Recovery of Modern Information Carriers: Compact Discs, Magnetic Tapes, and Magnetic Disks. Technical Bulletin 25. Ottawa: CCI. 2002. Available from CCI bookstore

Wheeler, Jim, and Brothers, Peter. "Disaster Preparedness and Response". Videotape Preservation Fact Sheet 13. Los Angeles: Association of Moving Image Archivists, 2003. www.amianet.org/publication/resources/guidelines/videofacts/disaster.html

Further References from *JAIC Disaster Preparedness, Response, and Recovery Issue*, Spring, volume 39, number 1.

"One Response to a Collection - Wide Mold Outbreak - How Good Can It Get?" by Diana Hobart Dicus

"Aseptic Technique: A Goal to Strive for in Collections Recovery of Moldy Archival Materials and Artifacts" by Mary-Lou E. Florian

"Disaster Recovery at the University of Alberta, or, Every Flood Has a Silver Lining" by Shirley Ellis

"Midnight in the Garden of Soggy and Damp: The New Year's Eve Disaster at the Virginia Historical Society" by Stacy Rusch and Holly Herro

Online

Emergency Drying Procedures for Water Damaged Collections. Library of Congress. www.loc.gov/preserv/emer/dry.html

Emergency Salvage of Moldy Books and Paper. Northeast Document Conservation Center. www.nedcc.org/plam3/tleaf39.html

Emergency Salvage Procedures for Wet Items. PDFs, cover a range of objects. Minnesota Historical Society. www.mnhs.org/preserv/conservation/emergency.html

After the Flood: Emergency Stabilization and Conservation Measures. Historic structures. Preservation Assistance Division, U.S. National Park Service. www.palimpsest.stanford.edu/byorg/nps/npsafter.html

Salvage Operations for Water Damaged Archival Collections:

This article is reprinted from the May 1997, volume 19, number 2, issue of the *WAAC Newsletter*.

Introduction

I have been salvaging wet records and writing disaster plans for the British Columbia Information Management Services (formerly the B.C. Archives and Records Service) since 1982. In May, 1988 the salvage section of the then current disaster plan was printed as an article in the *WAAC Newsletter*.¹ It was well-received and generated many requests for reprints.

Recently, I examined wet records from yet another disaster. Some problems were familiar - wet volumes and files, but others involved materials that are relatively new, such as carbonless papers and diazo microfiche. The experience reinforced for me the benefits of ongoing disaster planning. I also realized that it was timely to present WAAC readers with the updated plan in the form of this article.

I would like to thank the following experts for their advice. For the recovery of sound and video recordings, I am indebted to Brian Macdonald (National Archives of Canada), Gilles St. Laurent (National Library of Canada), and Gerald Gibson (Library of Congress). The sections on the recovery of photographs were revised on the basis of a workshop supervised by Debbie Hess Norris at the Getty Conservation Institute. Additional tips on archival materials were provided by Nancy Marrelli (Concordia University).

Finally, many thanks go to my employer, and Barry Byers, my supervisor, for their ongoing support in maintaining the plan - and for giving me the practical experience in the salvage of wet records.

GENERAL

Salvage is only a small part of the overall disaster planning process: prevention, preparedness, response, and recovery. Most importantly, management should support planning; duties should be delegated ahead of time, and staff should be trained. For more information, consult the classic references in the field.²

The first table shows the levels of flood emergencies to prepare against, and the responses that may be necessary. In the chaos of a real disaster, events will unfold in an unpredictable way.

A. Minor disaster

Do not enter the area until the Chief Conservator has declared it safe to do so. If there is an electrical hazard, make sure the circuit breakers have been disconnected.

The Chief Conservator notifies the Conservator and Imaging Services Supervisor (if needed for documentation or roll film recovery).

The Chief Conservator, accompanied by the Conservator and designated Records Curator will assess the damage:³

Where is it?

How many records are damaged?

If it is water damage:

Have the records been wet for more than 48 hours? Is mold present?

Is the water clean or dirty?

Are the records wet, partially wet, or damp?

What materials are damaged?

The Chief Conservator, in consultation with the Conservator, will formulate recovery plans. If further assessment shows that recovery is beyond the scope of Conservation and Technical Services, the Disaster Recovery Team is activated.

The Chief Conservator will coordinate with the building superintendent to:⁴

Clean up water. If assistance is not prompt, a mop-up team will be designated.

Control the environment.

Circulate air with fans.

The Chief Conservator will monitor the environment.

While the water is being cleaned up, a Records Curator will arrange for extra services (such as cold storage) and extra supplies (such as extra boxes and newsprint for interleaves).

The Chief Conservator will supervise the packing of damaged materials and the move to the Conservation Lab, roll film processing facilities, or cold storage.

The Records Curators will keep basic records regarding the location of the materials moved.

The Conservation Unit will air dry the damaged materials.

B. Moderate and major disasters

Do not enter the scene of disaster until the Recovery Director has designated it as safe to enter. Confer with the building superintendent, fire and police departments.

The Communicator alerts the Disaster Team by phone or in person at each worksite. Key team members will meet during the assessment stage; others are assembled after the site has been stabilized and salvage is ready to proceed.

The Recovery Director, Recovery Specialist, and Conservation Specialist, accompanied by the Recorder and a photographer, will assess the scene of disaster.⁵ The latter three will estimate and record the damage in a preliminary way. They should consider:⁶

SALVAGE AT A GLANCE,
a 17" by 22" summary chart,
accompanies this article as a
separate fold-out poster.

Table 1: Potential Emergencies

Scale of disaster ¹	Examples	Materials affected	Utilities affected	Operations affected	Staff Mobilization	Resources necessary	Facilities
Minor	Minor roof and plumbing leaks	Small quantity Can be easily air dried or frozen	Power operational	Regular operations are not physically disrupted	Preservation and Imaging Services staff - other staff not needed	In-house supplies plus a few extra services (cold storage)	Can be treated in-house by conservation and imaging labs
Moderate	Burst water pipes, sewer backup	Large quantities that need freezing Complex materials that need air drying	Power may be out of order or disconnected for safety reasons	Flood damage physically disrupts regular operation in one site	Extra staff needed - activate Disaster Response Team	In-house supplies plus ordering of outside supplies, cold storage needed	May require extra facilities for freezing, air drying of records, and treatment of roll films
Major	Fire (water damage) Broken water mains	Large quantities that need freezing plus complex materials that need air drying	Power may be out of order	Regular operations physically disrupted in one or all sites	Activate Disaster Response Team after human safety needs met	In-house supplies, order outside supplies Cooperation necessary with other institutions for sharing of resources	External facilities needed for freezing, air drying, treatment of roll film, and freeze drying of records
Major-catastrophic	Great earthquake (broken pipes)	Large quantities	All utilities out of order	All operations disrupted	Activate Disaster Response Team after human safety needs met	In-house supplies Cooperation necessary with neighboring institutions	Air drying may be only method because of failure of utilities and transportation

¹ Stanford University Libraries, "Collections Emergency Response Manual," (Palo Alto: Stanford, 1992).

Salvage Operations for Water Damaged Archival Collections, continued

Where is the damage? Is it in one small area, or in all sites? This will affect the mobilization of staff, supplies, and facilities.

How many records are damaged? Large quantities of records should be frozen to await further treatment.

What kind of water damage is it?

Have the records been wet for more than 48 hours?
Is mold present?

Is the water dirty? The records may need to be cleaned.
Are the records wet, partially wet, or damp? This affects the drying method.

What materials are damaged? Different media need specialized packing and drying methods.

See the Salvage at a Glance table.

The Recovery Specialist will review the salvage priority list and revise it if necessary. It is better to freeze wet records rather than to discard them under the pressure of an emergency.

Given the extent of the damage, the Recovery Director decides whether the site will remain open, or closed so staff can participate in salvage operations.

The Recovery Director coordinates with the building manager to:

Remove standing water. If the building manager cannot assist, the Recovery Director will make alternative arrangements.

Reduce the temperature to less than 18°C (65°F) by turning down the heat.

Lower relative humidity by adjusting the humidification system or installing rented dehumidifiers.

Circulate air with fans. Separate compact storage units so air can move between them. Open doors if security is available.

The Recovery Specialist will monitor the temperature and relative humidity.⁷

Electricity to power cleanup equipment may not be available. The Logistics Manager will obtain generators if the electricity is off. Use safely grounded, waterproof cords.⁸

The Recovery Director will set up a headquarters near the site and ensure that it is accessible by phone or walkie-talkie.⁹ The Recovery Director will designate facilities for the treatment of records that can only be air dried. If the conservation lab is not operational, the Logistics Manager will locate alternative facilities.

The majority of paper and photographic records should be packed and shipped to cold storage. Freezing will stabilize wet materials and buy time until the records can be dried.

The Logistics Manager arranges for emergency facilities and supplies, particularly: cold storage, transportation to cold storage, and packing supplies. Arrangements should be made for team members - coffee, portable toilets, etc.¹⁰

The Communicator gathers teams at a designated assembly point. The Recovery Director will brief team members and assign them to:¹¹

Prepare packing materials (cutting freezer paper, assembling cardboard boxes) and move records to packers.

Pack the damaged collections. See packing instructions below for the materials being handled.

Begin with items on the floor and the wettest objects, and then items on the ends of shelves.

Number the crates and record their contents.

Label crates with Tyvek tags; mark cardboard boxes directly with a waterproof pen.

Record separately: the catalogue range of the records; media priority; condition of the contents as wet, partially wet, or damp; and the destination (e.g. cold storage, conservation lab).

Move crates and boxes by hand trucks and pallet movers to a truck in an accessible location.

Meetings are held at the beginning of each day to review strategy and to keep up morale. Salvage team duties should be rotated.¹²

If the damage is substantial and salvage will take more than 10 hours, loosen tightly packed document boxes, books and pamphlets so they do not jam into the shelves.

Do not separate remaining dry books and documents when the relative humidity is high.¹³ If the RH remains high during cleaning and repairing of the storage areas, remove to an air conditioned room.

GUIDELINES FOR PACKING

A. General

Be extremely careful when handling wet materials - all of them are very fragile, and they can be easily damaged during packing and transport. If cardboard boxes are saturated or weak, replace them with new containers. Borderline boxes may be reinforced by packing inside plastic crates.

Pack files in order and retain documentary information. If the label is loose or lost, pencil identifying information and location on a piece of paper, and insert it in the volume or box. Don't mark wet paper. Film and tape reels and the backs of picture frames can be marked with a grease pencil.¹⁴

During removal, do not stack materials in piles or on the floor. If boxes are put on pallets, do not mix different sizes of boxes or stack more than 3 boxes high.¹⁵

If there is time, different materials should be packed separately, in the following categories: by media, moldy from uncontaminated, and wet from partially wet and damp.¹⁶

Salvage Operations for Water Damaged Archival Collections, continued

B. Packing Guidelines for Specific Media

1. Paper

Do not try to separate **single sheets of paper** or uncrumple them. Pick up files by their folders, and interleave the folders every two inches with freezer paper. If it is known from the outset that the records will be freeze dried, interleaving is not necessary. Fill cartons and crates three quarters full.¹⁷

Soluble Media (watercolors, soluble inks, hand colored maps and historic map and plan production processes): Do not blot the surface. Quickly freeze or dry.

Coated papers will stick together unless frozen or dried immediately. Keep them wet in cold water until they can be air dried or packed for freezing.

Framed prints and drawings: If time and space permit, unframe and pack as for single sheets.

Maps, plans, oversize prints and manuscripts: Sponge standing water out of map drawers. Remove the drawers from the cabinet, ship and freeze them stacked up with 1" x 2" strips of wood between each drawer. Pack loose, flat maps in bread trays, flat boxes, or plywood sheets covered in polyethylene.¹⁸ Bundle rolled maps very loosely to go in small numbers to the freezer, unless facilities are available for conservators to unroll them.

Drafting cloths are coated with starch and may stick together like coated papers.¹⁹ Be careful not to blot the surface or apply pressure. Immediately freeze or dry.

Maps and plans by photoreproductive processes (diazos and blueprints in particular): Do not blot the surface. Quickly freeze or dry.

Maps and plans on Mylar:²⁰ Do not blot if the inks are soluble. Freeze or air dry.

2. Books

Don't open or close wet books or remove book covers. Gently shape closed books to reduce the distortion set into the book on drying.²¹

If the water is very dirty, wash the books before freezing. Do not wash open books and those with water soluble media (e.g. letter press books). Wash closed books in tubs of cold running water and dab away (do not rub!) mud with a sponge. Time and facilities may limit treatment at this stage; it may be safer to clean the books after they are dried.²²

Lay a sheet of freezer paper around the cover, and pack spine down in a milk crate or cardboard carton. Pack only 1 layer deep, to prevent crushing of bindings. Oversized volumes can be packed flat in cartons or bread trays, 2-3 books deep.²³

If books have fallen open, pack them "as is" in cartons or trays. They can be stacked in between sheets of freezer paper and foam.²⁴

Leather, parchment, and vellum bindings are an immediate priority because they distort and disintegrate in water, and they are highly susceptible to mold growth. They should be air dried; if there are large quantities, freeze them. Books with coated papers will stick together unless frozen or dried promptly. Keep them wet in cold water until they can be air dried or frozen.

3. Parchment and Vellum

Interleave between groups of folders, pack in crates or flat boxes, and freeze.

4. Paintings

Tilt the painting to drain off excess water, and take it to a work area for immediate drying. Transport horizontally if you can; if not, carry the painting facing toward you, holding the side of the frame with the palms of your hands.

Larger paintings should be carried by 2 people. The order of removal and treatment is: first, the most highly valued; second, the least damaged; third, slightly damaged; and fourth, severely damaged.²⁵

5. Computer Magnetic Media

Check with the Systems Administrator, to ensure that undamaged backup tapes are available. It is far more practical to recover data from backup tapes than it is to salvage damaged media.

Separate into the following: dry, wet enclosures only, and wet media. If water has condensed inside cassettes, treat the tapes as wet.²⁶ Do not touch magnetic media with bare hands.

Media damaged by mud, sewage, or sea water: as soon as possible, rinse in tap water.

Keep magnetic media wet so that contaminants will not dry onto the tape or diskettes. Media can remain wet in cold clean water for several days. Pack inside plastic bags. If media will remain wet for weeks, immerse them to prevent mold. Do not freeze magnetic media because the tape can stretch, and lubricants can migrate out.²⁷

Cartridge backup tapes: Keep wet by packing inside plastic bags. Pack all tapes vertically in plastic crates or cardboard cartons.

Floppy disks: Pack upright in plastic bags inside boxes or in containers of cold water.

Open reel computer tapes: Handle the tapes by their hubs and pack them vertically inside plastic bags inside boxes.

Salvage Operations for Water Damaged Archival Collections, continued

6. Compact Discs and CD-ROM's

If the discs have been exposed to sea water, wash them in tap water immediately. Do not scratch the disc during rinsing or packing.²⁸ Pack discs vertically in crates or boxes.

7. Sound and video recordings

Sound and Video Tapes

Separate the tapes into the following: dry tapes, wet boxes only, and wet tapes. If water has condensed inside a cassette, treat the tape as wet.

Salvage tapes according to the following priorities:²⁹

- unmastered originals over masters,
- masters over reference copies,
- older tapes over newer,
- paper over acetate,
- acetate over polyester based tapes.

Tapes that have been damaged by mud, sewage, or sea water: as soon as possible, rinse in tap water.

Keep tapes wet, at their initial level of wetness. (For example, some tapes may have only become wet on the outside of the tape pack, and it is not necessary to immerse them). If the tapes dry at this stage, contaminants will dry onto the tape and be harder to remove later. Pack tapes individually inside plastic bags, keeping loose labels with the tape. Pack tapes vertically into plastic crates and cartons.

In general, magnetic tapes can remain wet for several days, as long as the water is cool and clean. This is longer compared to paper records.³⁰ However, immersion may be limited in two cases. Many tapes have water soluble label adhesives and inks,³¹ and paper boxes and labels. In addition, older tapes may not survive long immersion. This may reduce the salvage time to 48 hours or less for some media.

If magnetic tapes cannot be salvaged for more than a week, immerse them to prevent mold. Do not freeze magnetic media.³²

Discs

Salvage shellac and acetate discs first, because they are sensitive to water. If storage boxes are badly damaged, transfer the discs (up to 5 at a time) to plastic crates or cardboard cartons. Pad the bottom of the crate with ethafoam and interleave with ethafoam every 25 records to absorb shocks. Always support the discs vertically and hold the discs by their edges. Avoid shocks and jolts during transport.³³ Groups of discs, particularly 78's, can be very heavy. Pack them in small boxes (or larger ones with extra padding) that can be easily moved.

8. Photographic Materials

Salvage the following historic photographs without delay. They are best preserved by water protective measures, because the damage may be severe.

Wet collodion glass negatives. Salvage first and air dry immediately. Both immersion and freeze drying will destroy the binder.³⁴

Cased photographs:

- Ambrotypes:** Salvage and air dry immediately, both immersion and freezing will destroy the binder.³⁵
- Pannotypes:** Salvage and air dry immediately.
- Tintypes:** Salvage and air dry immediately.
- Daguerreotypes:** Salvage and air dry immediately.

Color transparencies by the additive process. (Autochromes, Dufaycolor). The recovery rate is poor because the dyes dissolve. Do not freeze.³⁶ Air dry immediately.

Dye transfer prints. The recovery rate is poor because the dyes migrate. Prevent damage by enclosing in water proof containers.³⁷

Deteriorated nitrates. Emulsions are water soluble and could be lost. Air dry or freeze immediately.

Deteriorated acetate negatives. Air dry or freeze immediately. Handle with care because of the swelling of the emulsion and backing layers.

Carbon prints and Woodburytypes. Air dry or freeze quickly. Handle with care because the binder will swell up considerably.³⁸

Other photographs should be kept wet until they are either air dried or frozen. If allowed to partially dry, they will stick together. If there is time, rinse the photographs with cold water before they are dried or frozen.³⁹ Pack inside plastic bags in boxes or pails. Keep to a minimum the immersion time before treatment or freezing.⁴⁰

Prints, negatives, and transparencies. Salvage prints first, followed by negatives and transparencies on stable bases. Unframe and unmat framed photographs if there is time. If facilities and personnel are available, air dry; pack and freeze if not.⁴¹

Motion Pictures. If only the outside of the can is wet, dry the container and relabel it if necessary.⁴² If the film is wet, fill the can with cold water, and replace the lid. Pack into plastic pails filled with cold water or cardboard cartons lined with garbage bags. Ship to a film processor for rewashing and drying.

Microforms.

Microfilms in rolls. Do not remove the films from their boxes. Hold cardboard boxes (and their labels)

together with rubber bands. Wrap 5 cartons of film into a block with plastic wrap. Pack the blocks into a heavy duty cardboard box lined with 3 garbage bags; tie each bag separately. Label as 'wet film for rewashing and drying', and ship to a microfilm processor.⁴³

Aperture cards. Pack and freeze.

Microfilm strips in jackets. Pack and freeze.

Diazo microfiche. Pack and freeze.

RECOVERY METHODS

A. Overview of Drying Methods

The drying method should be selected after careful assessment of the collections. It is important to monitor the capabilities of suppliers who provide freeze drying and vacuum drying services. Check references beforehand and inspect a selection of materials before and after they are dried.

Air drying - Records are dried in a work space at room temperature. To discourage mold growth, the temperature should be below 18° C and the RH as low as possible (at all costs, below 60%) and fans should keep the air circulating. Materials are spread out on or interleaved with absorbent papers.

Freeze drying (vacuum freeze drying) - Frozen records are dried in a vacuum chamber at temperatures below 0° C. The water passes from ice to vapor without becoming liquid, even though heat may be applied to the shelves to speed up the process.⁴⁴ It is important to monitor the temperature of the records inside the chamber; once the materials have dried, they will heat up. Freeze drying prevents additional bleeding or feathering of soluble media, distortion of bindings, and the sticking together of coated materials.

Vacuum drying (vacuum thermal drying) - Frozen or thawed records are dried in a vacuum chamber at temperatures above 0° C. A vacuum is drawn, heated air is put into the chamber, and a vacuum is applied again to pull out moisture. (For magnetic tapes, the air should not be heated.) The process may be repeated again.⁴⁵

Freezer drying - Records are packed in permeable containers and kept in a cold storage vault for months. Over time, moisture sublimates out of the records, in the same way that food gets freezer burn. This is a slow process that will dry damp and partially wet records.

Desiccant dehumidification - Records are dried, while still on their shelves, by large dehumidifiers that are brought on site. The temperature and relative humidity should be controlled. This method may not be suitable for drying most collections, because soluble media will further bleed, and coated materials will block together.⁴⁶

B. Recovery Methods for Specific Media

1. Paper

a) Drying methods⁴⁷

Air drying is suitable for drying small quantities of damp and partially wet papers from minor disasters. It can be used, on a triage basis, to dry wet materials in a major disaster when services are not available.

Freeze drying is preferred for large quantities and wet materials. It is the best way to dry water soluble media, coated paper, and drafting linens.

Vacuum drying will dry large quantities of wet records without intrinsic value. However, it is not suitable for many archival materials because they have water soluble inks that could bleed. Never vacuum dry coated papers and drafting linens because they will stick together.

b) Air Drying of Paper

During the following operations, maintain the original order of the files. Pencil box and folder information on slips of paper and keep them with the records.⁴⁸

Documents and manuscripts. Damp and partially wet records can be dried in the following ways:

Spread documents out over blotters, paper towels, or unprinted newsprint. Change the absorbent materials when they become wet.

Interleave stacks of 25 sheets of damp papers and turn over frequently.⁴⁹

Dry damp records vertically, supported by book ends or supports through plastic crates.

Coated papers. Note that freeze drying has a far better success rate than air drying. If the papers are wet, separate each coated paper from the other by applying a sheet of polyester and lifting the plastic away with the paper. At this point, the paper can be dried on the polyester, which can be hung on lines.⁵⁰ Alternatively, dry the partially wet paper by interleaving between every sheet with waxed paper, or laying individual sheets on polyester web covered blotters.

Drafting cloths. Dry by interleaving with waxed paper, freezer paper,⁵¹ or polyester web covered blotters.

Maps and plans on Mylar.⁵² Do not blot if the inks are soluble. Air dry.

2. Books

a) Drying Methods⁵³

Air drying is suitable for drying small quantities of damp and partially wet books. It can be used, on a triage basis, to dry books in a major disaster when services are not available. Leather bindings should be air dried.

Salvage Operations for Water Damaged Archival Collections, continued

Freeze drying is preferred for large quantities and wet materials. It is the best way to dry coated papers and bound volumes with soluble inks.

Vacuum drying will dry large quantities of wet books. The books will distort more than if they were freeze dried and they will require more rebinding or restoration afterwards. Coated paper books should never be vacuum dried because they will stick together.

b) Air Drying Wet and Partially Wet Books

Air drying involves the following procedures:⁵⁴

Wet books will need to be drained before drying:

Stand the book upright, on its head, on absorbent paper. Support the book by opening the covers somewhat, but not the pages.

When the pages begin to dry and separate on their own, interleave them.

Prepare interleaves:

Suitable materials are thin blotters, unprinted newsprint, and paper towels.

Cut interleaves that are bigger than the pages.

Insert the interleaves into the gutter margin of the book:

The sheets should project above the head and foreedges of the book, but not on the lower edge where the book will stand.

Beginning at the back, put the interleaves at intervals through the book.

The sheets should not equal more than one third of the thickness of the volume, so that the binding won't be strained.

Separate the covers from the text block with absorbent paper or sheets of plastic.

Open the covers of the book and stand it upright.

Change the interleaves as they become wet, every 2 to 3 hours:

Put new interleaves in different places in the book.

Change the paper underneath the book, and turn the book over (if it was standing on its tail, stand it on its head - this will reduce strain on the binding).

Remove the used interleaves from the vicinity of the books. The sheets can be dried and used again if they are not dirty or cockled.

After the books feel dry to the touch, remove the interleaves and reshape the bindings:

Flatten each book under a sheet of plastic or covered board with a light weight on top.

Do not pile books on top of each other, because they could distort.

Ensure that the books are thoroughly dry before they are reshelved. Monitor for mold during and after drying.

c) Air Drying of Damp Books or Books with Slightly Wet Edges

Stand books upside down, and fan open the pages. Support paperbacks and books with damaged covers with bookends or weights. Every couple of hours, refan the pages. In the final stages, turn the book over to dry the tops of the pages. When the book feels dry, flatten under weights as above.⁵⁵

Damp or partially wet pamphlets - open and dry flat. Turn pages often.

d) Books with Coated Papers

Freeze drying will give the best results for wet coated papers. If the book is partially wet, fan open the pages and interleave between every page with waxed paper.⁵⁶ Damp books should be stood on their heads and fanned open. Fan through the pages frequently.⁵⁷

e) Books with Leather and Vellum Bindings

A book conservator should dry rare and vellum bindings.

If the books have been frozen, thaw them in the following way. Place blotters on the outside of the book, and then lay the book flat under weights. This will prevent the binding from drying out and distorting while the rest of the book thaws.⁵⁸

In the drying phase, isolate the binding from the text block with a sheet of plastic or blotter. Interleave the book. Lay the book flat on blotters, place another blotter on top, followed by a flat board and weights. Be careful to minimize the strain put on the binding. Change the interleaves as they become wet.

If leather bindings are freeze dried, they will in the very least severely distort. However, freeze drying may be chosen for bound volumes which contain soluble media, and have bindings of low intrinsic value.⁵⁹

3. Parchment and Vellum Manuscripts

A conservator may air dry individual sheets and charters by drying them with weights around the edges, or flattening them between weighted blotters.

Tests have shown that parchment and vellum manuscripts may be freeze dried. However, the sheets may increase in thickness and brightness, and decrease in mechanical properties. The changes may be reduced by subsequently dampening the records and flattening them under weighted blotters.⁶⁰

In any case, do not freeze dry gilded or illuminated manuscripts.⁶¹

Salvage Operations for Water Damaged Archival Collections, continued

4. Paintings

Ideally, this treatment should be done by a conservator.

Initially, set up tabletops padded with blotters and covered with plastic.

Separate the merely wet paintings from those showing structural damage. Signs of structural damage are tears in the canvas, flaking, lifting, and dissolving of paint and ground layers. Let structurally damaged paintings dry, face up in a horizontal position, on the tables.

Contact a conservator about drying paintings with high or fragile impasto layers.

Other structurally sound paintings on canvas can be dried in the following way:

Set up several more layers of blotter on the table, followed by a layer of Japanese tissue paper.

Unframe the painting, but don't remove it from its stretcher.

Lay it face down on this surface, making sure the tissue is not wrinkled.

Cut blotters to the inside dimensions of the stretcher frame.

Cut a sheet of plywood or thick masonite to the same dimensions, or smaller to fit inside the stretcher keys.

Cover the back of the canvas with a blotter (if the canvas is large and more than one blotter is necessary, abut the blotters end-to-end), then the board, and finally weights.

Change the blotter until the canvas is dry. If the tissue on the front has any tendency to stick to the paint layer, leave it in place.⁶²

5. Computer Media

a) Magnetic tapes

Rinse off sewage, mud, and sea water with tap water, if this has not been done already. If oil and greasy deposits remain, wash the tape in an unscented and undyed dish detergent.⁶³

Tapes can be air dried or vacuum dried without heat.⁶⁴

Vacuum drying has not been comprehensively tested on a variety of magnetic media. However, it may be the only practical way to dry large quantities of tapes. Do not freeze dry, freezer dry, or vacuum dry with heat (vacuum thermal drying).⁶⁵ The following instructions are for air drying of media.

Cartridge backup tapes. If only the outside of the cassette is wet, air dry it on absorbent materials. If the tape has become wet on the inside, or the cartridge is damaged, dismantle and air dry like reel to reel audio tapes.

Open reel computer tapes. Remove the tape from its canister and wrap-around. Rinse off the exterior of the tape with distilled water. If the tape is in good condition, dry the exterior wet surfaces with a lint-free cloth.⁶⁶ If the edge of the tape is fragile, do not blot and do the

following. Separate the reel flanges from the tape with a rubber grommet or similar material. This lets air flow around the tape and prevents the tape from sticking to the flange. Let the tapes air with fans blowing on them. (Do not use heat). When the tape looks dry on the out side, run it reel-to-reel on a tape cleaner or winder. Run the tape 6 times over the cleaning tissues and not the blades (remove them if you can), then put the tapes twice through both the tissues and blades. Never put wet tape on a tape drive because the tape could stick to the equipment and tear. Finally, recopy the tape.⁶⁷ Monitor the tape carefully; stop cleaning if the oxide layer begins to shed, or mechanical distortion becomes apparent.

Floppy disks. Wet disks should be removed from their jackets, washed, and dried. Before starting, dry a corner of the jacket and the disk hub with a lint free cloth. Mark both the jacket and the hub with a waterproof pen, so both can be matched later on.⁶⁸

5.25" disks. Move the diskette to one side of the jacket. Cut the opposite edge of the jacket with non-magnetic scissors. (Beware - the diskette begins 1/16" from the edge).⁶⁹

3.5" disks. If the jacket has screws, remove them. Hold the diskette with the metal door side down, and remove the door letting its spring fall outward. With a microspatula, open the shell at the side.⁷⁰

Carefully remove the disk without touching the surface. Wash disks in a tray of distilled water. Dry with a soft lint free cloth, or spread flat to dry on the same. Insert the diskette into a new jacket (taken from a new diskette - this can be reused), ensuring that the jacket or shell is firmly taped together so it won't get caught in the disk drive. Copy the disk on to a new disk and check the data. Label the new disk. Copy the information on the old jacket onto the new jacket. The computer drive heads should be cleaned frequently.⁷¹

6. Compact Discs and CD-ROM's

If discs were exposed to sea water, wash the tapes with tap water, if this has not been done already. Clean off mud and sewage by washing the tape in a detergent solution. Do not rub the disc because dirt could scratch the tracks. After either procedure, rinse with distilled water.⁷²

Before drying, rinse all discs with room temperature distilled water. Dry the disc vertically in a rack. If blotting is necessary, take care to avoid scratching the surface. Blot, do not rub, with a soft lint-free cloth.⁷³

CD cases and the enclosed paper should also be dried. Once the disc is removed, open the case and freeze dry the entire case and glossy paper booklet. Do not freeze dry the CD. While the cases are being dried, either store the discs in spare cases or stack the CD's interleaved with polyester web (such as Tech Clean Absorb Wipes).⁷⁴

Salvage Operations for Water Damaged Archival Collections, continued

7. Sound and Video Recordings

a) Magnetic tapes

Rinse off sewage, mud and sea water with tap water, if this has not been done already. If oil and greasy deposits remain, wash the tape in an unscented and undyed dish detergent.⁷⁵ Tapes can be air dried or vacuum dried without heat.⁷⁶ Vacuum drying has not been comprehensively tested on a variety of magnetic media. However, it may be the only practical way to dry large quantities of tapes. Do not freeze dry, freezer dry, or vacuum dry with heat (vacuum thermal drying).⁷⁷ The following instructions are for air drying of media.

Reel to reel tapes. Wash the tape while it is still wound on its reel. Rinse with distilled water. If the edges of the tape are in good condition, blot the sides of the tape and the reel with a lint free cloth.⁷⁸ Loosen the flanges of the reel if possible. Support the tape vertically and air dry it; or air dry by laying it on sheets of newsprint spread over plastic covered tables. If contaminants have spread inside the tape pack, run the tape twice over a tape cleaner.⁷⁹ Monitor the tape carefully during cleaning; stop if the oxide layer begins to shed, or mechanical distortion becomes apparent.

If the reels are still dirty, remove the tape and wash the reel with detergent and water. An alternative is to replace the reel or the flanges. The box can be air dried as well. Replace the box if it is badly damaged.

Videocassettes. If only the outside of the cassette is wet, air dry it on absorbent materials. If the tape has become wet on the inside, dismantle the cassette and dry as with reel to reel tapes.⁸⁰ Inspect the cassette spindles and springs for rust.⁸¹

Audio cassettes. If the tapes have only been splashed on the outside, dry off exterior of the tape. If the tape has become badly contaminated, or the cassette is damaged, dismantle the cassette and air dry the tape as above. Cassettes without mounting screws may have to be broken open, and the case replaced. Re-record the tape after drying.⁸²

b) Shellac, acetate, and vinyl discs

Salvage first shellac and acetate discs, which are sensitive to water. If these discs need to be washed, keep contact with water to a minimum.⁸³

Remove the discs from their sleeves and jackets. If labels have separated from the disc, mark the center of the disc with a grease pencil. Keep track of the label. Dry loose labels on sheets of unprinted newsprint or blotters. Write the number of the corresponding disc under the label. Jackets, sleeves, and labels may be dried like other paper materials.⁸⁴

If dirt has been deposited on the discs, wash them. The best way to clean them is with a record cleaning machine.⁸⁵ If this is not possible, wash in trays of distilled water. Air dry

the discs on supports that permit free circulation of air. If the disc needs to be wiped off, use a soft lint free cloth and blot along the grooves.

8. Photographs

a) The first priority is to air dry photographs that are very sensitive to water. The recovery rate may not be high.

Spread tabletops with small pieces of blotters or unprinted newsprint that can be changed as they become wet.⁸⁶ Remove photographs from their enclosures. Be sure to keep identifying information with the photo and maintain the original order.

Wet collodion glass negatives, unmounted ambrotypes, tintypes and pannotypes. Dry binder side up on blotters.

Cased photographs. (These are daguerreotypes, ambrotypes, and tintypes in cases). If water has penetrated inside the case and assembly, the package should be dismantled and the components air dried. Remove the assembly from the case. Carefully fold back the preserver frame, cut the sealing tape (if present) and take the assembly apart. Place daguerreotypes face up on blotters with the case components beside them. Wet collodion photographs should be dried in a similar way binder side up.

Additive color transparencies (Autochromes, Dufay-color). If water has penetrated inside, dismantle the slide. Remove the binding tape and cover glass, and dry face up.⁸⁷

Dye transfer prints. Dry emulsion side up on blotters.

Deteriorated nitrate negatives. If they are still salvageable, dry emulsion side up on sheets of polyester web (Hollytex or Reemay) over blotters. (The emulsion side can be identified by the notch code on sheet films - if the notch is in the upper right hand corner, the emulsion side is facing you.) Nitrates in the earliest stages of deterioration may be hung with plastic clips on a line. Don't let the negatives touch each other.

Deteriorated acetate negatives. If the emulsion is very swollen or channeled, dry emulsion side up on blotters covered with polyester web. Acetates in the early stages of deterioration may be carefully hung with plastic clips on a line.

Carbon prints and Woodburytypes. Dry emulsion side up on blotters.

b) Other prints, negatives, and transparencies

In order of preference, the drying methods are: air dry; freeze, thaw and air dry; and freeze dry.⁸⁸ Do not vacuum dry, it will make the photographs stick together in a lump.

If the photographs have been previously frozen, thaw them. Treat small batches that can be easily dried in one day without growing mold.⁸⁹

Salvage Operations for Water Damaged Archival Collections, continued

Keep the photographs wet in plastic bags until they are separated from each other and their enclosures. If it appears that the photographs could dry and stick together during thawing, immerse them again in cold water.

Remove photographs from their enclosures. Maintain their original order, and keep identifying information with them. If the enclosures and slide mounts have valuable information, dry them alongside the photographs.⁹⁰ If the enclosure information is minimal, it can be copied on to slips of paper that are kept with the photo.⁹¹

If the photographs have been exposed to dirty or salt water, clean them by immersing them in a tray of cool water. If the surface is in good condition, it can be very gently brushed (with a soft artist's brush or dental cotton) to release dirt. Do not brush photographs that have damaged binder layers, or processes with delicate surfaces - such as collodion chloride printing out papers and glossy Ilfochrome prints.⁹²

General air drying instructions. Spread tabletops with small pieces of blotters or unprinted newsprint that can be changed as they become wet.⁹³

Prints. Dry prints before negatives. Dry the print face up on blotters. If the print is in good condition, it may be blotted: lay a sheet of polyester web on the surface, and blot very gently over the web. Otherwise, the gelatin binder will stick directly to the blotting paper.⁹⁴ Unmounted albumen prints may curl up as they dry. To prevent this, dry them with weights around the edges,⁹⁵ or under lightly weighted polyester web and blotters.⁹⁶

Roll film negatives. Dry emulsion side up on blotters.

Sheet film negatives and transparencies. These have a gelatin layer on the back that could stick to absorbent papers. Carefully hang negatives to dry with plastic clips onto a line.⁹⁷ If clips are not available, dry the films emulsion side up on polyester web covered blotters.

Glass negatives. Dry negatives vertically, either by carefully propping them up on their long sides⁹⁸ or putting in racks. Dry flat those negatives that are broken, cracked, or have flaking emulsions.⁹⁹

Lantern slides. If water has penetrated inside, dismantle to prevent emulsion from sticking to other components. Dry the transparency as for glass negatives. Keep paper title and mask if they have documentary information.^{100,101}

Color slides in paper or plastic mounts. Be sure to remove slides from their plastic sleeves and pages. In a small emergency, when the environment is controlled, it may be possible to dry the slides in their mounts. If conditions are not ideal, it is necessary to unmount the slides and dry the components separately; careful record keeping is necessary. Hang the film chips on a line with extended paper clips.¹⁰² Alternatively, dry emulsion side up on absorbent materials.

9. Microforms

The best way to dry roll microfilms is to arrange for a microfilm processor to rewash and dry them.

Microforms: Follow the instructions under historic photographs for setting up a workspace, washing, and drying.

a) Aperture cards

Remove the film chips from their mounts. Wash the chips and dry them binder side up on blotters or newsprint. When they are dry, remount them.¹⁰³

b) Microfilm strips in jackets

Cut the strips from the jackets. Wash and dry the film, and insert into new jackets.¹⁰⁴ Alternatively, dry the outside of the jacket, and duplicate the film immediately.

c) Diazo and Vesicular microfiche

Remove from enclosures. Inspect diazo films for blistering and delamination. If damaged, discard and replace with a print from a security copy. Wash all damaged microfiche in cool clear water. Lay out to dry on absorbent materials or hang to dry on a line.¹⁰⁵

REHABILITATION

A. Rehabilitation of Storage Areas

After the collections have been removed, check the shelves and repair them if necessary. If mold growth has occurred, sterilize the shelves.

Monitor the environment and inspect the area for mold. Do not return the collections until conditions have stabilized.¹⁰⁶

B. Rehabilitation of Collections

Records that have been dried in low RH conditions need to acclimatize to the usual stack conditions. When the collections return, uncover them and let them equilibrate to the moisture content of the area; this could take up to two weeks. Inspect the records to ensure that they are indeed dry (less than 7% moisture content), and monitor daily for mold. In an ideal situation, collections should be kept in a separate rehabilitation area for 6 months. If this is not possible, monitor the collections closely for mold and humidity damage.¹⁰⁷

At this stage, it may be necessary to rehouse records in new enclosures.

Assess and sort dried records for future conservation, such as cleaning and structural repairs.

The Preservation Services Unit coordinates with Records Centre Services and library staff on the following: sorting of collections for reshelving, labeling of records and books, and tracking the location of records.

Salvage Operations for Water Damaged Archival Collections, continued

C. Post-Disaster Review

As soon as possible after the disaster salvage and recovery operation is completed the Disaster Response Team will review the disaster plan.¹⁰⁸

How can similar events be prevented in the future?

What worked?

What didn't work?

What supplies were missing?

What supplies were not available on short notice?

Management will send thank you letters to all staff, volunteers, and consultants who helped out. A report of the disaster will be sent to the Ministry Executive and any interested organizations.

SALVAGE AT A GLANCE, the 17" by 22" summary chart that accompanies this article, is printed on a synthetic paper designated by the manufacturer to be waterproof and stain, oil, grease, UV, and tear resistant.

You will not have to salvage the salvage chart.

References

¹ Betty Walsh, "Salvage Operations for Water Damaged Collections," *WAAC Newsletter* 10, No. 2 (May 1988), 2-5.

² John E. Hunter, "Museum Disaster Planning," in *Museum, Archive, and Library Security*, ed. Lawrence J. Fennelly. (Boston: Butterworths, 1983); John P. Barton, and Johanna G. Wellheiser, ed., *An Ounce of Prevention: A Handbook on Disaster Contingency Planning for Archives, Libraries, and Record Centres*, (Toronto: Toronto Area Archivists Group, 1985); Hilda Bohem, *Disaster Prevention and Disaster Preparedness*. (Berkeley: U. of C., 1978); Sally Buchanan, *Disaster Planning, Preparedness and Recovery for Libraries and Archives: A RAMP Study with Guidelines*, (Paris: Unesco, 1988); Judith Fortson, *Disaster Planning and Recovery: A How-To-Do-It Manual for Librarians and Archivists*, (N.Y.: Neal-Schuman Pub., 1992).

³ Toby Murray, "*Basic Guidelines for Disaster Planning in Oklahoma*," (Tulsa: Oklahoma Conservation Congress, February 1991), 12; Fortson, 47.

⁴ Bohem, 11-12; Barton and Wellheiser, 59.

⁵ Barton and Wellheiser, 17.

⁶ Murray, 12; Fortson, 47.

⁷ Bohem, 11-12; Barton and Wellheiser, 59.

⁸ Peter Waters, "Procedures for Salvage of Water-Damaged Library Materials," in *A Primer on Disaster Preparedness, Management, and Response: Paper-Based Materials*. (Washington: Smithsonian, NARA, Library of Congress, and National Park Service, 1993), 6.

⁹ Bohem, 11.

¹⁰ *Ibid.*; Barton and Wellheiser, 58.

¹¹ Waters, *Primer*, 4,7; Fortson, 49; Buchanan, 73,75.

¹² Bohem, p.15; Buchanan *RAMP*, 66.

¹³ Waters, *Primer*, 7.

¹⁴ Fortson, 49; Waters, *Primer*, 13; Public Archives of Canada, *Archives Branch Contingency Plan*, (Ottawa: Public Archives, Sept. 21, 1982), 11.7.

¹⁵ Waters, *Primer*, 7,10; Buchanan, *RAMP*, 77.

¹⁶ Waters, *Primer*, 6.

¹⁷ Fortson, 51.

¹⁸ Gilles Langelier, and Sandra Wright, "Contingency Planning for Cartographic Archives." *Archivaria* 13 (Winter 1981-82), 55.

¹⁹ Fortson, 56-57; Carol Turchan, "The Chicago Historical Society Flood: Recovery Analysis Two Years Later" *The Book and Paper Group Annual* 7 (1988), 61-62; Harold Henderson, "After the Flood: A Restoration Drama" *Reader: Chicago's Free Weekly* 16 No. 1 (September 16, 1986), 22.

²⁰ *Ibid.*

²¹ Waters, *Primer*, 13; Buchanan, *RAMP*, 74.

²² Waters, *Primer*, 8-9.

²³ Buchanan, *RAMP*, 76-77.

²⁴ Waters, *Primer*, 7.

²⁵ Canadian Conservation Institute, *Emergency Treatment for Water-Damaged Paintings on Canvas*, CCI Note 10/5 (Ottawa: CCI, April 1986), 1.

²⁶ Miriam Kahn, *Disaster Response and Prevention for Computers and Data* (Columbus: MBK Consulting, 1994), 26.

²⁷ John Van Bogart, "Recovery of Damaged Magnetic Tape and Optical Disc Media" (paper presented at Emergency Preparedness and Disaster Recovery of Audio, Film and Video Materials: A Library of Congress Symposium, Washington D.C. September 21, 1995, accessed December 19, 1995); available from http://www.nml.org/publications/presentations/disaster_recovery/lc_disaster-recovery; Internet.

²⁸ *Ibid.*

²⁹ *Ibid.*

³⁰ *Ibid.*

³¹ Gerald Gibson, personal communication, January 24, 1996.

³² Van Bogart.

³³ Public Archives of Canada, *Archives Branch Contingency Plan*, (Ottawa: Public Archives, September 21, 1982), p. 11.5.

³⁴ Klaus B Hendriks and Brian Lesser, "Disaster Preparedness and Recovery: Photographic Materials," *American Archivist* 46 (Winter 1983), 66.

³⁵ *Ibid.*, 66-67.

³⁶ Klaus B. Hendriks, "Recovery of Photographic Collections Following a Flood", in *Sauvegarde et Conservation des Photographies, Dessins, Imprimés et Manuscrits: Actes des journées internationales d'études de L'ARSAG: Paris 30 Septembre au 4 Octobre 1991*. (Paris: Association pour la Recherche sur les Arts Graphiques, 1991), 19.

³⁷ Norris, 605.

³⁸ Ana B. Hofmann, "Dealing with Photographic Materials, Before and During a Disaster," in *Library Disaster Handbook: Planning, Resources, Recovery*, ed. Nelly Ballofet, (Highland N.Y., Southeastern New York Library Resources Council, 1992), 17; Debbie Hess Norris, "Air-drying of Water-soaked Photographic Materials: Observations and Recommendations", in *ICOM Committee for Conservation 11th Triennial Meeting Edinburgh Scotland 1-6 September 1996, Preprints Volume II*, ed. Janet Bridgeland (London: James & James, 1996), 604.

³⁹ Hofmann, 12.

⁴⁰ Hendriks and Lesser, "Disaster Preparedness," 67.

⁴¹ *Ibid.*

⁴² Dan Den Bleyker, "Disaster Planning for Film and Video Collections," in *Preservation Papers of the 1990 SAA Annual Conference* by the Preservation Section of the Society of American Archivists, (Chicago: Society of American Archivists, 1991), 68.

Salvage Operations for Water Damaged Archival Collections, continued

- ⁴³ Eastman Kodak, "Water Damaged Film" QC0004, dated 6-89, 2.
- ⁴⁴ Sally Buchanan, "Drying Wet Books and Records," in *Preservation of Library & Archival Materials: A Manual*, ed. Shereilyn Ogden (Andover: Northeast Document Conservation Center, 1994), 2.
- ⁴⁵ *Ibid.*; Fortson, 66.
- ⁴⁶ Buchanan, "Drying", 1; Fortson, 66.
- ⁴⁷ Buchanan, *RAMP*, 80-85.
- ⁴⁸ Fortson, 56.
- ⁴⁹ *Ibid.*
- ⁵⁰ Buchanan, "Drying", 3.
- ⁵¹ Fortson, 57.
- ⁵² Fortson, 57; Turchan, 62; Henderson, 22.
- ⁵³ Buchanan, "Drying", 1-2; Fortson, 58.
- ⁵⁴ Peter Waters, *Procedures for Salvage of Water-Damaged Library Materials*, 2nd ed. (Washington: Library of Congress, 1979), 17-21; Buchanan, *RAMP*, 80-83; Fortson, 53-55, 59; Buchanan, "Drying," 3.
- ⁵⁵ Fortson, 54, 57.
- ⁵⁶ Fortson, 54-55.
- ⁵⁷ Barton and Wellheiser, 67.
- ⁵⁸ Procedure from the National Library of Canada.
- ⁵⁹ This procedure was followed for water damaged judges' bench books at B.C. Information Management Services.
- ⁶⁰ A.E. Parker, "Freeze-Drying Vellum Archival Materials", *Journal of the Society of Archivists*, 14 No. 2 (1993), 181; Françoise Fleider, Françoise Leclerc, and Claire Chahine, "Effet de la Lyophilisation Sur le Comportement Mécanique et Chimique du Papier, du Cuir et du Parchemin" (Paper presented at the ICOM Committee for Conservation 5th Triennial Meeting, Zagreb, 1978), 78/14/8, 5-6.
- ⁶¹ Parker, 180.
- ⁶² CCI, 2.
- ⁶³ Van Bogart.
- ⁶⁴ *Ibid.*; Edward F. Cuddihy, "Storage, Preservation, and Recovery of Magnetic Recording Tape" in *Environnement et conservation de l'écrit, de l'image et du son, actes des deuxièmes journées Internationales d'études de L'ARSAG, Paris, 16-20 Mai, 1994* (Paris: Association pour la Recherche Scientifique sur les Arts Graphiques, 1994), 185.
- ⁶⁵ Van Bogart.
- ⁶⁶ *Ibid.*
- ⁶⁷ Sidney B. Geller, *Care and Handling of Computer Magnetic Storage Media*, NBS Special Publication 500-101 (Washington: National Bureau of Standards, 1983), 34-35.
- ⁶⁸ ARMA International Guideline for Records and Information Management, *Magnetic Diskettes - Recovery Procedures* (Prairie Village: Association of Records Managers and Administrators, 1987), 3.
- ⁶⁹ ARMA, 3; Lundquist, Eric G., *Salvage of Water Damaged Books, Documents, Micrographic and Magnetic Media* (San Francisco: Document Reprocessors, 1986), 85; Kahn, 20.
- ⁷⁰ Kahn, 20; Jeanne Drewes, submission to the Conservation Distlist, 9:57, Jan. 31, 1996.
- ⁷¹ ARMA, 4-5.
- ⁷² Van Bogart.
- ⁷³ *Ibid.*; Kahn, 28; Gilles St. Laurent, *The Care and Handling of Recorded Sound Materials* (Wash.: Commission on Preservation and Access, 1991), 11.
- ⁷⁴ Gilles St. Laurent, personal communication, October 10, 1996.
- ⁷⁵ Van Bogart.
- ⁷⁶ *Ibid.*; Cuddihy, p. 185.
- ⁷⁷ Van Bogart.
- ⁷⁸ *Ibid.*
- ⁷⁹ Public Archives, p. 11.7; Brian Macdonald, personal communication, December 21, 1995.
- ⁸⁰ Macdonald.
- ⁸¹ Van Bogart.
- ⁸² Public Archives, p. 11.8; Macdonald.
- ⁸³ St. Laurent, communication; Gibson.
- ⁸⁴ Public Archives, p. 11.8.
- ⁸⁵ St. Laurent, *Sound*, p.10.
- ⁸⁶ Norris, 604.
- ⁸⁷ Christopher Harvey, "The Treatment of Flood-Damaged Photographic Material at the Perth Museum and Art Gallery, Scotland," *Paper Conservation News* 76 (December 1995). 10-11.
- ⁸⁸ Hendriks and Lesser, "Disaster Preparedness," 67.
- ⁸⁹ Harvey, 9.
- ⁹⁰ Norris, 603.
- ⁹¹ Harvey, 10.
- ⁹² Norris, 607.
- ⁹³ *Id.*, 603.
- ⁹⁴ *Ibid.*
- ⁹⁵ Hofmann, 14.
- ⁹⁶ Norris, 604.
- ⁹⁷ *Ibid.*, 605.
- ⁹⁸ *Ibid.*
- ⁹⁹ Harvey, 9.
- ¹⁰⁰ Norris, 605.
- ¹⁰¹ Harvey, 10.
- ¹⁰² Norris, 605-606.
- ¹⁰³ Public Archives, p. 12.10.
- ¹⁰⁴ Julia Niebuhr Eulenberg, *Handbook for the Recovery of Water Damaged Business Records* (Prairie Village, Kansas: ARMA, 1986), 34.
- ¹⁰⁵ *Ibid.*
- ¹⁰⁶ Bohem, 16.
- ¹⁰⁷ Waters, 12; Buchanan, *RAMP*, 88.
- ¹⁰⁸ Bohem, 17.

Excerpts from: Emergency Salvage Procedures for Wet Items

ARCHAEOLOGICAL: GENERAL CONSIDERATIONS

Priority: The actual priority of drying treatment will vary according to the nature of the material and the specific object. In general, organic materials should be moved and treated first (within 24 hours). The order of priority should be: botanical and plant materials; leather and skin; textiles; bone, antler, horn, teeth, shell; non-glazed ceramics; reconstructed glass and ceramics; glazed ceramics and glass; untreated metal; conserved metal and lithics. An essential general priority is the retention of provenance information from the objects or packaging materials associated with the objects.

Handling Precautions: Refer to the sheets for specific object materials for actual handling precautions. Many archaeological objects, such as lithic collections, have multiple objects that may be stored in the same box or bag belonging to one provenance. Wrap fragile and/or fragmented artifacts individually to keep the parts together and to help prevent further fragmentation. Each individual artifact may or may not be labeled. When the bags and boxes become wet or damaged in some way, the labeling information on the object or package may become lost during the recovery process. Keep each lot/catalog number of artifacts together if the original packaging container is damaged beyond use. Create a duplicate label with the provenance information on it and place it with the objects. Noting the shelf location would also be helpful before the materials are moved for drying.

Packing Method: Varies with the fragility of the material. In general, pack in such a manner so that provenance lots will not get intermixed during unpacking and drying.

Supplies Needed

soft bristle brushes	clean water	sponges clean towels	paper
portable dehumidifier	labels	towels or unused newsprint	fans

Preparation For Drying: Varies with the specific material, however, in most for cases, archaeological materials will tolerate sponging with clean water or a slightly damp soft bristle brush to remove surface mud.

Drying Procedure: Again, make certain that provenance information is kept intact and with the artifacts throughout the drying process. Most artifacts and materials can be dried using fans that are set up so as not to blow directly upon the objects. Excess moisture can be absorbed by sponges, clean towels, paper towels or unused newsprint. Check daily to make certain that mold growth has not occurred. A portable dehumidifier should be set up to slowly bring the relative humidity in the room down to 50%.

ARCHAEOLOGICAL: BONE AND SHELL

Priority: These materials are susceptible to water damage if allowed to be wet for extended periods of time. Treat within 48 hours, if possible. Mold growth will occur in packages that contain excess moisture. Handling Shells with powdery surfaces will be readily affected by water, whereas mammalian long bones will be relatively unaffected.

Handling Precautions Move items only after a place has been prepared to receive them. Empty bags and boxes of excess water and extraneous debris before moving.

Packing Methods: Varies with the fragility of the objects. Wet bone and shells should be kept wet until controlled drying procedures are begun. Pack each object separately on damp absorbent materials such as paper towels, acid-free tissue, etc. Label decorated and objects with fragile surfaces to go to the Objects Conservator for drying and treatment.

Supplies Needed

clear water	plastic for wrapping	sponges, clean towels, clean paper towels
fans	labeling supplies	or unused newsprint
dry blotting materials		

Preparation For Drying: Rinse or sponge stable objects with clear water to remove mud and extraneous dirt. Be careful to preserve provenance information, especially where the labels on the objects have been abraded or dissolved off. Keep these objects moist by wrapping in plastic until they can be treated.

Drying Procedure: Sponges, clean towels, or unused newsprint may be used to absorb excess moisture. Exchange wet for dry blotting material at least daily until items are dry. Check daily for mold growth. Air dry, using fans to keep air moving without blowing directly on the pieces. Place items on propped up window screens if drying racks are not available. This will allow air to circulate on all sides of the objects. Use portable dehumidifiers to slowly remove moisture from the area and objects. Bring relative humidity down to 50%.

ARCHAEOLOGICAL: CERAMICS (earthenware, terra cotta, unglazed stoneware, and sunbaked earth)

Priority: Sunbaked earth and terra cotta objects should be dried within 24 hours to prevent loss of surface detail and disintegration. Begin drying within 48 hours to prevent mold growth and softening if objects have been saturated.

Handling Precautions: Reconstructed vessels may become unstable at the joins, especially if water permeable adhesives were used (e.g., Elmer's Glueall). Keep pieces together in a plastic bag or box. Be careful to retain provenance information.

Packing Methods: Some low-fired ceramic objects may contain soluble salts that will migrate to the surface when the object dries, causing loss of surface detail due to recrystallization and subsequent spalling. Separate those objects and very low-fired ceramics. Keep moist by packing in damp toweling and plastic bags.

Supplies Needed

plastic bags or boxes	damp toweling	distilled water
blotting material	soft bristle brushes	portable dehumidifier
fans		

Preparation For Drying: Have a place set up where pieces can be laid out for maximum air flow to allow for even drying. Place objects on raised screening to distribute air flow. Salt containing objects may have to be soaked to remove the salts by diffusion into distilled water; consult a Conservator.

Drying Procedure: Blotting material can be used to absorb excess moisture. Gently brush off excess mud and dirt if it can easily be distinguished from the object (e.g., in the case of low fired prehistoric material and sunbaked earth). Dry slowly with fans blowing above the surface of the objects. A portable dehumidifier should be set up to slowly bring the relative humidity in the room down to 50%.

ARCHAEOLOGICAL: METALS

Priority: Unstable (i.e. actively corroding, heavily mineralized, and copper chloride involved objects) should be treated with 48 hours since they can suffer damage from long term exposure to water. Stable and treated artifacts can be dealt with last.

Handling Precautions: Move items only after a place has been prepared to receive them.

Packing Methods: Water sensitive artifacts, such as copper alloys should be packed with silica gel in individual containers. Metal artifacts with textile or leather remnants and pseudomorphs must be wrapped quickly to retain the moisture. Letting these objects dry out without proper treatment may cause the loss of the pseudomorphic evidence. Previously treated objects (e.g., tannic acid and wax may exhibit "flash" rusting under the wax coating. These objects should be packed with silica gel to stabilize the rust until the wax can be removed and the tannin treatment reapplied. The same is true for artifacts that have been treated and coated with an acrylic resin.

Supplies Needed

silica gel	plastic wrapping materials or bags	soft bristle brushes
clear water	blotting material	portable humidifier
fans	heat gun	

Preparation For Drying: On most metal artifacts that have become wet, the mud or dirt can be gently removed with clear water and a soft brush. If previously dry, composite objects such as a jackknife with bone handles should be kept moist and taken to a Conservator for treatment or advice.

Drying Procedure: Blotting material can be used to absorb excess moisture. Exchange wet for dry blotting material at least once daily until artifacts are dry. Check daily for increased corrosion, shrinkage and fragmentation. Air dry, using fans to keep air moving without blowing directly on the artifacts. Raise items off the floor or work surface on trestles, pallets, or lumber to allow air to circulate underneath the items. Smaller artifacts such as nails can be placed on drying screens. Metal pieces that have not previously been coated with a thermoplastic resin can be dried with moderate heat (90-100 degrees F) in an oven or with a hand held heat gun. Use portable dehumidifiers to slowly remove moisture from the objects and area. Bring the relative humidity down to 50%, although the optimal range for completely metal objects is 30%-35%.

LEATHER AND RAWHIDE

Priority: Begin drying within 48 hours to prevent mold growth. Leather with the condition known as "red rot," will be irreversibly stiffened and darkened by exposure to water if not treated quickly.

Handling Precautions: Wet leather may be fragile; leather with red rot or which is torn will require support to transport safely. Move items only after a place has been prepared to receive them.

Excerpts from: Emergency Salvage Procedures for Wet Items

Packing Method: Wrap items with freezer paper or plastic sheeting to prevent red-rotted leather from coming in contact with and soiling adjacent items and to keep it from drying before it can be treated. Support complex shaped objects with uninked newsprint or other absorbent material.

Supplies Needed

portable dehumidifier	freezer paper or plastic sheeting	fans
pallets or lumber	sponges, clean towels, paper towels,	
clear water	or unused newsprint	

Preparation For Drying: Rinse or sponge with clear water to remove mud or dirt before drying. Be careful in rinsing red rotted or painted/gilded surfaces. Keep red rotted leather damp, if it is still in that condition, until proper consolidation can be done.

Drying Procedure: Some leather was intended to be flexible (e.g. much native tanned “buckskin,” harness leather, and some rawhide) and will need to be manipulated during drying in order to retain its flexibility. Other leather was either not intended to flex (e.g. shields, fire buckets) or no longer needs to be flexible and may be padded out and allowed to dry slowly. Sponges, clean towels, paper towels, or uninked newsprint may be used to absorb excess moisture. Pad out to correct shape using uninked newsprint or other absorbent material. Change padding material as it becomes saturated. Air dry, using fans to keep air moving without blowing directly on the pieces. Raise items off the floor on trestles, pallets, lumber, or screens to allow air to circulate on all sides. Use portable dehumidifiers to slowly remove moisture from the area and objects. Bring the relative humidity down to as close to 50% as is practical. Check daily for mold.

ORGANICS: BONE, HAIR, HORN, IVORY, SHELL

Priority: Begin drying within 48 hours to prevent mold growth.

Handling Precautions: Move items only after a place has been prepared to receive them.

Packing Method: Individually wrap or plastic bag objects since these materials tend to split and fragment into small pieces when wet or damp.

Supplies Needed

plastic sheeting or bags	clear water	sponges, clean towels, paper towels,
portable dehumidifier	fans	or unused newsprint
pallets or lumber		

Preparation For Drying: Rinse or sponge with clear water to remove mud or dirt before drying.

Drying Procedure: Sponges, clean towels, paper towels, or unused newsprint may be used to absorb excess moisture. Air dry slowly, using fans to keep air moving without blowing directly on the pieces. Raise items off the floor on trestles, pallets, or lumber to allow air to circulate underneath the items. Use portable dehumidifiers to slowly remove moisture from the area/objects. Bring relative humidity down to 50%.

WOOD

Priority: Begin drying within 48 hours to prevent mold growth. Polychromed objects require immediate attention; notify the Conservator.

Handling Precautions: Move items only after a place has been prepared to receive them. Lift from the bottom of an object: tables from the apron; chairs by the seat rails, not by the arms, stretchers, slats, headpiece or crest rails; trunks from the bottom, etc.

Packing Methods: Partially wetted objects can be packed with dry blotting materials such as uninked newsprint or acid free blotters to remove as much moisture as possible. Thoroughly wetted, unpainted objects should be wrapped with blotting materials, then wrapped in polyethylene sheeting to retain as much moisture as possible, since fast drying will cause irreversible damage.

Supplies Needed

soft bristle brush	fans	sponges, clean towels, paper towels
wooden spatula	polyethylene sheeting	or uninked newsprint
pallets or lumber	portable dehumidifier	

Preparation For Drying: Rinse or sponge with clear water to remove mud or dirt before drying. Be careful not to wipe or scour as grit will damage remaining finish. Use a soft bristle brush to clean carvings and crevices. If mud has dried, dampen with a sponge and remove with a wooden spatula; rinse. Remove wet contents and paper liners from drawers and shelves.

Excerpts from: Emergency Salvage Procedures for Wet Items

Drying Procedure: Absorb excess moisture with sponges, clean towels, paper towels, or uninked newsprint. Blot, do not wipe, to avoid scratching the surface. Air dry, using fans to keep air moving without blowing directly on the pieces. Tent the objects with polyethylene sheeting to slow the drying. Raise items off the floor on trestles, pallets, or lumber to allow air to circulate on all sides. Open doors and drawers slightly to allow air to circulate inside the items. Use portable dehumidifiers to slowly remove moisture from the area and objects. Drying quickly will cause warping and cracking. Bring relative humidity down to 50-55%.

TEXTILES AND CLOTHING

Priority: Dry archaeological textiles and textiles with bleeding dyes as quickly as possible, all other textiles within 48 hours to prevent mold growth.

Handling Precautions: Move textiles only after a place has been prepared to receive them. Handle wet textile objects only when necessary and as little as possible because textile materials are weaker when wet and can be easily damaged or torn. Be particularly careful with wet archaeological textiles, which can be extremely weakened by contact with water. It is important to support wet textile objects thoroughly when moving them, either on a solid support or in a sling made from a length of fabric, because the added weight of the water increases the possibility of damage. Wet hanging costumes should be carried on a sling and not re-hung. Be sure that all identifying information, such as accession number tags, is retained with the objects, and label any parts that become detached. If it is possible to do so without excessive handling, remove all wet packing materials such as cardboard and tissue from contact with the textiles. Do not unfold or spread out wet textiles at this time, and do not stack wet textiles on top of each other. Textile objects often have associated non-textile materials such as metal and leather. See the salvage instruction sheets for these materials, keeping in mind that the textile component will probably be the most vulnerable.

Preparation for Drying: A large area is needed to dry wet textiles, as they cannot be placed on top of each other. Floor space can be used; if possible, clean floors before using the space. Table and floor surfaces should be covered with clean polyethylene sheeting, and then with clean blotters or other absorbent material. Fans can be used to increase air circulation and speed drying; place them so that air flow goes across the surface of the textiles for optimal drying.

Supplies Needed

polyethylene sheeting	blotters	cheesecloth
terry cloth toweling	sponges	muslin or boards for carrying

Drying Procedures: Quick drying is essential for best recovery of wet textile objects. Excess water can be removed from very wet textiles in good condition by gentle blotting with sponges. Absorbent materials such as blotters or terry cloth toweling should then be placed on top of the objects, removed when saturated, and replaced with dry ones. When the textiles have dried to an appreciable level, they can be gently handled to open out folds and expose new areas to the air. Costumes can be padded out slightly with acid-free tissue, polyester batting, or nylon tulle to speed drying and prevent creasing. Textiles with bleeding dyes should be dried first and as quickly as possible; use absorbent materials to remove as much water as possible. Concentrate drying activity on the areas that are bleeding so that they will dry before the surrounding areas; hair driers on low heat can be used. Cover the textile with cheesecloth and be sure the cheesecloth is in close contact with the textile; leave the cheesecloth undisturbed until the textile is completely dry.

TEXTILES: COSTUME ACCESSORIES

Priority: Begin drying within 48 hours to prevent mold growth.

Handling Precautions: Support all accessories when moving them; use a solid support. Keep handling to minimum as these complex objects can be greatly weakened by water.

Preparation for Drying: Prepare the room and surfaces for drying as for textiles and clothing.

Supplies Needed

polyethylene sheeting	blotters	cheesecloth
terry cloth toweling	sponges	muslin or boards for carrying

Drying Procedures: Do not attempt to open fans or parasols, and do not reshape hats while wet. Gently blot water from the objects with sponges, blotter, terry cloth toweling, or paper towels. As hats dry, they can be gently reshaped and padded with acid-free tissue or polyester batting for drying. Shoes and gloves should be treated as for leather historical objects; in general gloves do not need to be padded out for drying. Fans and parasols should be dried as is; do not attempt to open or reshape them. If any of the objects have bleeding dyes, follow the procedure outlined under Textiles and Clothing.

Getting Ready to Respond, When Theory and Life Meet

This is a story of when one thing leads to another, and specifically of two related events, a disaster recovery workshop and an actual disaster, and their role in furthering the creation of mobile disaster response carts at the Los Angeles County Museum of Art. Another side effect was to begin investigating and updating the current disaster plans and procedures at the museum, particularly as they apply to the salvage of museum artifacts.

Workshop

In May of 2005 I attended a week long workshop on the “Recovery of Wet Materials Following a Disaster,” which was held in the beautiful setting of the National Conservation Training center in Shepherdstown, West Virginia, on the banks of the Potomac. Our course instructors, Barbara Moore and MJ Davis, led a group of 16 participants with various backgrounds and specialties through an intensive week of lectures and hands-on recovery exercises. The course was extremely instructive and highlighted many of the most important points in disaster recovery situations and actual salvage operations.

Workshop Topics

- Salvage Guidelines and Collection Priorities
- Re-entry, Health and Safety
- Recordkeeping and documentation
- Public relations, insurance, money, business
- Salvage – theoretical and practical methods for recovery of a variety of wet materials. Special session on the recovery of photographic and electronic media
- Supplies and resources
- Discussion of participants experiences with disaster recovery

We covered basics of disaster planning and preparedness, the importance of collections and materials priorities, as well as health and safety issues, before moving into the specifics of recovery and salvage operations. We also discussed in depth the importance of record-keeping and documentation during a recovery operation, and touched on issues of public relations, insurance, and funding. Time was also spent discussing the supplies needed to undertake a salvage operation safely and successfully.

The bulk of the workshop time was spent on a combination of lectures and practical recovery exercises for specific materials, such as books and paper, paintings, textiles, clothing and accessories, furniture and wooden objects, ethnographic and archaeological objects, and photographs and electronic media. At the beginning of the lab sessions, participants divided into teams, then selected a “collection” from a treasure trove of materials, and then we got to have the thrill of being able to pour water all over our “museum artifacts.”

During our salvage exercises we were able to experiment with objects which were housed in various types of archival and non-archival storage containers, to simulate different storage environments. Once wetted, objects were left for almost three days, and we even added muddy water from the Potomac to some pieces.

At the end of our three day period, recovery operations went into play. Each team had pre-assigned roles for its members, including leader, documentation person, and workers. We removed and treated objects according to priorities we had established for which objects were most important in our “collections” and also according to the sensitivity of particular material types. It was also important to note that any labels or identifying materials were kept with the objects throughout all of the steps.

In the drying phase of the recovery exercises, a variety of techniques were carried out, depending on the object, and how wet it had become. The use of secondary supports was emphasized, as many materials were extremely fragile when wet. The use of low-tech solutions and easily available materials was also emphasized. Some practical work in freezing materials was also carried out, including wrapping and packing books, and freezing various types of photographs and other paper-based materials.

We were also fortunate in being able to spend an entire day with guest lecturer, Gary Albright, discussing and carrying out the salvage of various types of photographic and electronic media. Some of the most informative and valuable discussions over the course of the week were those presented by participants who reviewed real-life recovery operations they had participated in and discussed the measures their institutions were taking to set up emergency response teams and procedures.

Fire

Almost two weeks to the day I returned from the workshop, full of motivation to update and reform all of LACMA’s disaster plans, I unfortunately had the real-life opportunity to use much of the knowledge I had gained.

A devastating fire at the studio of Los Angeles artist Joe Goode, which is situated behind the home he shares with his wife Hiromi Katayama, of Hiromi Paper International, began in the early hours of the morning of May 24th. Joe and Hiromi were awakened by their dog barking at around 5am. When Joe went to investigate, he found the studio on-fire. A smaller display space is separated from the main part of the studio by a metal door. This show room had not yet caught fire and Joe ran in and closed the door, which saved the room and its contents from much damage, and also prevented the fire from potentially spreading to the house, which is separated from the studio building by a small garden. By the time the first helpers arrived at 6am, firemen were still present but the fire had been extinguished. There were no smoke detectors or sprinkler system in the studio.

When I was called at 7am, my three other paper conservation colleagues were already on the way to the site, but without any supplies. So, my recent workshop experience in mind, I went to the museum first and ran around as quickly as possible grabbing everything in sight that I thought we might need. I gathered rolls of blotter paper, polyester webbing, brushes, sponges, erasers, swabs, cotton, unframing and hand tools, and personal safety equipment which included our respirators, boxes of gloves, goggles, and dust masks, and lab coats. As we didn't have a clearly identified area of supplies or cart for this purpose, it did take me a little bit of time to gather things, and I was worried that I had forgotten something that might prove to be crucial.

In the main part of the studio the damage was severe. The fire itself started from a pile of oil and solvent soaked rags that had been inadvertently left out and had ignited some time during the night. Tall vertical racks where many framed pieces were stored had works in them three rows deep in some cases, and the works on the outermost side suffered the most damage and were mostly destroyed. Joe's work, as well as the work he had by other artists such as Ed Ruscha, consisted primarily of oil paintings and works on paper.

Works on paper which were stored in the studio in racks were framed with a mixture of glass and acrylic glazing. There was also a flat file of prints in the show room which was much less damaged due to Joe's quick action in closing the separating door. Exact figures on the total number of artworks destroyed are still unknown, but of Joe's recent work of the past year, only 4 paintings survived, and these only because they were not in the studio, which was an incredibly devastating loss.

When I first arrived at the site, tables had been set up in the small garden which separates the studio and house. A triage system was already in place, in which workers in the studio space brought pieces out to the garden for salvage. With one or more people working at each table, we unframed and partially cleaned and blotted items. Pieces were then brought into the house and placed on clean blotters and interleaving layers of polyester webbing to dry, or stacked against the wall in the case of some of the paintings. Fans were placed throughout the drying areas, directed away from the pieces but to keep the air circulating. Windows and doors were also opened to help increase the air flow.

A side area of the yard was also used to lean paintings to dry safely out the way of foot traffic. For the works on paper, we were able to reduce excess moisture and try to prevent tide lines by blotting pieces which were extremely wet. The paper pieces were less sooty as a whole, due to the framing materials. In the case of many of the oil paintings, the sooty residues were able to be brushed and gently vacuumed from the surfaces, and blotters were also placed behind the canvases, where possible, to aid drying.

Of the works on paper, we salvaged about 90%, which came to about 300 artworks. In general, works with framing, matting, and glazing, some of which were also stored in cardboard boxes and/or wrapped in plastic, fared much better. However in some cases paintings that were wrapped in plastic had it fused to the surface. As you might expect, the paintings on canvas fared the worst, as they did not have as many protective layers of framing materials. However in the case of the framed works, broken glass and melted acrylic which had fused to the pieces was also a problem.

In talking with the paper conservators after the event, the general consensus was that in terms of salvage we had done pretty well, at least for the paper objects. We were all familiar with each other and worked well as a team. And fortunately many things which did suffer damage can eventually be treated. Where I think we didn't do so well was personal safety – those of us working outside in the garden were mostly just tired and hot. But those removing artwork from the studio would not consistently wear the masks which were offered, and although they did wear gloves, they were soon covered in soot and other residues.

Roles were also not well identified initially, but evolved over the course of the day into a pretty smooth division of labor. However when extra helpers arrived the flow became interrupted to adjust the work space to make room for more people. Our documentation was also spotty - for example frames which were removed to be discarded were not marked as to which piece they came from, which would have been useful for insurance purposes.

There were also many supplies we wished we had more of – enough tools for each person, more boxes of gloves (we went through about 6 or 7 boxes), paper towels, cleansing wipes for the work surfaces and our hands, and garbage bags. Hats and sunscreen were also missed, though we did eventually get sunscreen. A better separation of dirty and clean work areas would also have been great.

Stress was also a debilitating factor, especially for Joe and Hiromi, however they really put on brave faces that day and helped round up supplies and see that people were fed and watered. Although this event was relatively small in scale, and fortunately no one was injured, it illustrates many of the basic issues which have to be considered no matter the size of the salvage situation.

Salvage carts, revisiting disaster plans

The workshop stressed the advance preparation of supplies for use in a salvage situation, and the fire highlighted this need as having a salvage kit prepared would have greatly facilitated our efforts. Both events also brought home the importance of preparing a disaster plan, or updating a current plan.

Getting Ready to Respond, When Theory and Life Meet, continued

Necessary supplies used in the salvage of cultural materials were outlined at the workshop, which also stressed the importance of personal safety kits for those entering a salvage situation, and which can also be used in general disaster situations where no salvage is being attempted. We also saw a very comprehensive example of the safety and survival gear kept packed and ready to go by the Emergency Task Force team members of the National Park Service. Other examples of personal safety supplies as well as salvage kits were also seen on a recent trip to some of the conservation labs at the Getty Museum where small, brightly colored back packs which contain personal safety supplies hang prominently in each lab.

Also, Getty conservator Nancy Turner showed us her portable disaster kit which is housed in a rolling garbage bin which has been customized for dealing with manuscripts – for example it contained ace bandages for use in binding around books. I was also able to find at least one article¹ for creating and outfitting a custom mobile salvage cart which contains a comprehensive set of supplies. In looking at what was available commercially, as I expected, there is nothing which is exactly suited to the needs of a museum salvage operation. However there are several kinds of spill carts which could be customized for the salvage of cultural heritage materials and are portable enough to be manually brought up stairs, if necessary.

Conclusions

In thinking of salvage efforts and particularly response carts and kits, the workshop and the fire really highlighted some important issues for me.

- Scale of event
- Planning and training of staff
- Collections and material type priorities
- Accessibility and locations of caches

One of scale, in that several levels of supplies are necessary – first, carts that can be brought quickly to a small scale, more common event, like a small leak. As well, larger caches of similar and supplementary materials and also more operational, safety, and clean-up supplies should be created for a more significant event. For very large scale events, the supplies present at the museum may be inaccessible, so forming local networks of institutions that come to each other's aid is critical, as well as having up to date contacts with commercial suppliers of materials and disaster recovery services.

Salvage kits

- Multiple kits, i.e. several locations, sizes, purposes
- Regularly update and check contents of kits
- Salvage kits ensure rapid response and reduce stress!

And finally, a few more thoughts to leave you with: as I mentioned, having multiple kits in various sizes, locations and geared to specific purposes is very important. As well, regularly updating and inspecting the contents of all your kits and caches of supplies is a necessity not only to replace expired materials such as batteries, but also to remain familiar with all the contents.

Salvage kits are an essential disaster recovery tool which aids in a rapid but thoughtful response thereby reducing stress for those responding and hopefully minimizing damage to collections materials.

General issues

- Planning, preparation, and drills
- Prioritizing collections items and material types
- Importance of assigning roles

In terms of more general issues, it is important to repeat that planning, preparing for a wide range of events (including the worst case scenarios) and practical training exercises are all obvious but extremely important. Along with this establishing priorities within your collections by relative importance as well as by the sensitivities of different material types is a crucial part of the planning process. And last but not least, preparing teams whose members have assigned roles such as leader, documentation person, salvage workers, and some one authorized to purchase services and supplies, for example, is another essential component of a good plan.

At LACMA, we are just in the beginning phase of planning our salvage kits, which I hope will give us further impetus to revisit and update our existing disaster plans.

Acknowledgements

LACMA Conservation Center, especially paper conservation and Ashley Johnson

MJ Davis and Barbara Moore and my fellow participants at the workshop

Nancy Turner and Marc Harnly, Getty Museum

Victoria and Charles Hill,

Joe Goode and Hiromi Katayama and the rest of the Goode fire salvage crew

(Footnotes)

¹ “Emergency Cart for Protecting Collections from Water Damage” by Michael R. Harris, p.285-287 in *Storage of Natural History Collections: Ideas and Practical Solutions*, vol. II, Carolyn R. Rose and Amparo R. de Torres, editors, Society for the Preservation of Natural History Collections, 2002.

Getting Ready to Respond, When Theory and Life Meet

Jennifer Koerner

List of salvage supplies for emergency response cart

Note: this list does not consider operational supplies for a major event, site clean-up/rehab supplies, or survival supplies for people, but focuses more on a small to medium event. It also does not include quantities as that would be customized depending on institution size and collections.

Basic supplies to consider – Add customized materials based on collections type.
Plan to have several sets of tools and safety equipment.

Operational/Containment

- A clearly marked cart, garbage pail or other type of mobile container to house supplies
- Buckets, mops
- Copy of emergency plan/procedures, contact numbers of staff and materials/freezer suppliers
- Disposable cameras
- Door wedges, caution tape
- Extension cords
- Flashlights and spare batteries
- Flood light with extra battery
- Garbage bags
- Handiwipes
- Label tags for objects
- Notepads, clipboards, pencils, sharpener, pens, markers
- Plastic sheeting
- Spill snakes or pillows
- Suction cups to lift vitrines
- Tapes – polyethylene, duct, low tack (for taping broken glass)
- Wood blocks to support larger objects

Treatment/Drying

- Ace bandages
- Alcohol
- Blotter paper, sheets or rolls
- Clothes pins, plastic
- Clothesline, string (also useful to keep electrical cords out of water)
- Cotton rags
- Cotton swabs, cotton
- Film cleaning solution
- Freezer bags in various sizes, (used to protect and also to transport objects for freezing)
- Hand tools – spatulas, tweezers, brushes
- Paper towels, blank newsprint
- Plastic totes with handles for tools – one for each set of tools
- Polyester webbing such as Reemay or Hollytex
- Sponges
- Squeegee
- Tools – screwdrivers, wire cutters, pliers, box cutters, extra blades, scissors, also consider hammer, nails, crowbar, hatchet
- Water
- Waxed paper
- Weights

Safety

- Dust masks
- First aid kit, inc. alcohol wipes
- Gloves – variety of kinds, nitrile, lantex, leather palm, solvent
- Hard hats
- Protective clothing – jumpsuits or aprons, rubber overshoes
- Safety goggles
- Sunscreen, visors

Other basic supplies too large to accommodate on cart

- Additional lighting
- Crates for packing items for freezing, such as milk crates or polyethylene boxes (ResCubes)
- Dehumidifiers
- Environmental monitors
- Extra garbage cans
- Fans
- Folding tables
- Greater quantities of plastic sheeting, blotter paper, and polyester webbing
- Greater quantities of safety supplies
- Pallets
- Pressing equipment, such as a book press, and/or blotter stacks
- Shallow trays for rinsing items
- Shovel
- Wet-dry vac

Adapted from 'Recovery of Wet Materials Following a Disaster' handout "Emergency Response Equipment and Supplies" by MJ Davis and Barbara Moore, which was adapted from *Disaster Preparedness Workbook for U.S. Navy Libraries and Archives*, prepared by Lisa L. Fox.

and

"Emergency Cart for Protecting Collections from Water Damage" by Michael R. Harris, p.285-287 in *Storage of Natural History Collections: Ideas and Practical Solutions*, vol. II, Carolyn R. Rose and Amparo R. de Torres, editors, Society for the Preservation of Natural History Collections, 2002.

Articles You May Have Missed

“US snipers on Samarra’s spiral minaret,” *The Art Newspaper*, 05/03/2005.

The US military says “military necessity” takes precedence over the safeguarding of this Islamic landmark. US army snipers have been positioned at the top of the 172-foot-high great spiral minaret of the 9th century al-Mutawakil mosque in Samarra. Their presence has raised concerns for the safety of one of the most important buildings in the history of Islamic architecture, of such significance for Iraqis that it is depicted on the new 250 dinar banknote.

“New York City pledges \$4.5 million for Guggenheim restoration,” *The Art Newspaper*, 05/03/2005.

Earlier this year, The museum has disclosed a plan to overhaul the structure with funding from chairman Peter B. Lewis, who offered \$15 million towards the project if other trustees raise another \$5 million. The trustees have found the necessary money, and the City of New York, through the Department of Cultural Affairs, has promised another \$4.5 million toward the project as part of the capital improvement budget for the 2005-08 fiscal years.

This is the first time the Guggenheim has received such support from the City. The money will pay for the exterior restoration of the building, and could also fund interior reconfigurations including the transformation of the café into a café-bookshop, the conversion of offices into a restaurant, creating public access to the roof, and upgrading climate control and computers.

“Herd mentality in Brentwood,” *Los Angeles Times*, 05/21/2005.

The Getty Center’s artful approach to clearing treacherous hillsides of brush: Rent a few hundred goats. The all-goat landscaping team of 300 has been eating away at the dry brush on 8 acres of land at the Getty Center, too treacherous and steep for the maintenance crew to reach. The goats are mostly attracted to low-lying brush and grasses and can stretch up to 8 feet to strip low branches off trees while leaving the canopies intact. The animals naturally “recycle” the plants, fertilizing the soil and reducing the chance of mudslides.

Sarah Bunten and her husband, Hugh, manage the goats, and their company, Nannies and Billys, was spawned

after a co-worker gave them a goat as a wedding present. “When you tell people you’re a goat herder, they always ask you where your staff is.”

“Preserved Bodies Spring Leaks,” *Los Angeles Times*, 06/04/2005.

Although *Body Worlds* drew record crowds during its recent engagement at the California Science Center (and spawned a second exhibition, *Body Worlds 2*), a similar display of preserved bodies in San Francisco has developed a nasty problem: Some of the bodies have begun to leak.

Fluid is beading on some of the plasticized corpses on display in *The Universe Within* at the Masonic Center on Nob Hill, a possible sign that the specimens were not properly preserved.

The city’s Department of Health has taken samples of the fluid and say it contains no “pathogenic organisms,” but they are still awaiting tests to see exactly what the fluid is.

The San Francisco exhibition, developed by Austrian TV producer Gerhard Perner, is not associated with “Body Worlds,” created by German scientist Gunther von Hagens, inventor of the plastination process.

While in Los Angeles, *Body Worlds* had no problems with melting corpses but did suffer the loss of the preserved remains of a 13-week-old fetus that was stolen from the second exhibition in late March. Museum officials say the fetus, stolen by two women shown on videotape, has not been recovered.

“Works by Famed Artists Discovered,” *Associated Press*, 06/04/2005.

Paintings by two famed artists were reported discovered Friday in different European cities. In Germany, an unknown work by Edvard Munch was found after restorers discovered it behind another canvas at the Kunsthalle, the main art museum in Bremen. It shows three mask-like faces looking down toward a naked, seated girl.

Restorers discovered it hidden on a second canvas behind the museum’s only Munch work, director Wulf Herzogenrath said. The museum has christened the find *Girl and Three Men’s Heads* and dated it 1898.

Meanwhile, an unsigned painting by 17th-century French master Georges de La Tour has been discovered

in a Madrid mansion after hanging in offices unnoticed for decades. The painting, *St. Jerome Reading a Letter*, is only the second work by La Tour known to exist in Spain and only one of about a dozen of his paintings to have been identified throughout the world.

“Another Arrest In Munch Theft,” *CBC*, 05/04/05.

Police have nabbed a fourth suspect in the brazen theft of Edvard Munch’s classic painting, *The Scream*, arresting the man at his job in suburban Oslo. The paintings stolen from the city’s Munch Museum have yet to be recovered, and media speculation has raised the possibility that the works were burned. Police officials deny that this is the case and insist that they are still hopeful that the art can be recovered.

“Renaissance Painters ‘Corrected’ Portrait Features,” *Discovery*, 05/09/05.

Renaissance artists acted like plastic surgeons by changing the shape of noses, chins, and jaws in their portraits, new forensic technology has revealed. Developed by Italian researchers during an investigation of 16th-century skeletal remains, the procedure has turned into an invaluable tool for art historians.

Franco Rollo of the University of Camerino developed the new technique while studying a skeleton at the Church of Santa Chiara in Urbino, Italy. Rollo superimposed digital pictures and three-dimensional scanning of the skull onto the face of Eleonora Gonzaga, as it was portrayed by Titian in the painting on display at the Uffizi Gallery in Florence.

It emerged that Titian’s painting of Eleonora matched the skull fairly closely except for the length of the nose, which is clearly exaggerated. In an attempt to shed some light on the meaning of this alteration, the researchers examined other six idealized female characters painted by Titian in the years 1514-1555:

“We discovered that the original portrait of Eleonora basically matched the six idealized women. It means that Titian painted his portraits following the standards of his own canon of beauty, which included a longer than average nose,” Rollo said.

“King Tut In The Scanner,” *Wired*, 05/11/05.

Thanks to computer scanning technology, we’ve now got a pretty good idea what King Tut looked like. Three teams of scientists have created the first facial reconstructions of King Tutankhamun based on CT scans of his mummy. The images are strikingly similar both to each other and to ancient portraits of the boy pharaoh, including his depiction on the famed golden mask he wore into the crypt.

“Chimp Art Comes Up For Sale,” *The Guardian (UK)*, 05/12/05.

Congo was a chimpanzee who painted. Picasso owned one of his works, as did Miro. Now, for the first time, three Congos have come on to the open market and will be auctioned alongside works by Renoir, Andy Warhol, and the Chapman Brothers at Bonhams in London this month. The pictures, created with tempera on paper, are from the artist’s most productive period in the late 1950s. They are estimated to be worth between £600 and £800 for the three, but such has been the interest already that they may well fetch much more.

“32 Pollocks Unearthed In New York,” *Washington Post (Reuters)*, 05/14/05.

A trove of 32 previously unknown works by abstract art icon Jackson Pollock has been discovered by a family friend, who said Friday he would like them to tour internationally and be studied by art historians. Alex Matter, a filmmaker who knew Pollock from childhood, said the collection was among the possessions of his late parents, who were long associated with Pollock and his wife, Lee Krasner. About two years ago Matter stumbled upon the artworks, wrapped in brown paper since 1958 and stored for almost three decades in a warehouse in East Hampton, Long Island.

“Turkish Dam Threatens Historical Sites,” *The Art Newspaper*, 05/13/05.

Turkey plans to go ahead with a controversial dam that threatens to submerge important historical sites. If the dam goes ahead a whole town will be submerged with the exception of the citadel, perched on top of the cliffs. Among the losses will be the Sultan Suleiman Mosque, the minaret of which is one of the most outstanding examples of early

15th-century Ayyubid architecture; the cylindrical tomb of Zeynel Bey, a rare example of Central Asian style architecture in Anatolia; and the tomb of the holy Imam Abdullah, grandson of Cafer-i Tayyar, uncle of the prophet Mohammed, a shrine visited by about 30,000 Shia pilgrims each year.

“Saving Buildings Of The Soviet Avant Garde,” *New York Times Magazine*, 05/15/05.

Important historical buildings are being threatened in Moscow. Preservationists are concerned about the legacy of the Soviet avant-garde, the buildings designed in the 15 or so years following the 1917 October revolution, perhaps the most fertile period in Russian architectural history. These buildings range from the expressionistic forms of architects like Konstantin Melnikov to the machine-inspired, functionalist structures of the Constructivists. They are stunning for their eclecticism, yet they were united by an unflinching optimism. The goal was to overthrow centuries of cultural history and to replace that past with an architectural order that would embody the values of a new, modern society.

“Getty Curator Indicted In Italy,” *Los Angeles Times*, 05/20/05.

A Getty curator has been indicted in Italy on charges of plundering antiquities. Marion True, 56, curator for antiquities at the museum and director of the Getty Villa, is accused of criminal conspiracy to receive stolen goods and illicit receipt of archeological items. It is also alleged that True in effect laundered goods that were purchased by a private collection and then sold to the Getty in paper transactions that created phony documentation.

“Crumbling Buildings Endanger Smithsonian Treasures,” *Washington Post*, 05/27/05.

A new report says artifacts in the Smithsonian Museum are endangered because of facilities that are in bad disrepair. For example: A leak at the National Air and Space Museum caused rust on the wing of the first plane to hit Mach 2. Plaster walls are weeping in the Renwick Gallery. Some buildings and exhibits on the Mall and at the National Zoo have closed because of disrepair, and more leaks threaten the Smithsonian’s historic

collections and irreplaceable objects, the report says. Cost to fix and maintain the deteriorating facilities over the next nine years? At least \$2.3 billion, the Smithsonian estimates -- almost 13 times its current facilities budget.

“The Electric Brush,” *Discovery*, 05/27/05.

An electronic brush promises to give artists more control of their digital work. Unlike other painting programs that allow artists to pick up colors from a limited computer palette, I/O Brush lets people paint with colors and textures that might come from, for instance, a piece of fruit, a favorite shirt, a memento from a trip, a teddy bear, or garden flowers. The brush contains a microphone, a miniature video camera, and sensors and is wired to a computer that runs a touch screen. An artist picks up “ink” from her environment by lightly brushing over the desired object.

“Fakes, Frauds, and Fake Fakers,” *Art News*, 5/2005.

Icilio Federico Joni, who was known as the prince of Sienean fakers and specialized in Renaissance paintings until he died in 1946, got his own show last year. He was the star of *Authentic Fakes* at the Santa Maria della Scala museum in Siena, where he is considered something of a folk hero.

Joni was so good that Old Master experts have called him one of the art world’s most spectacularly inventive forgers. Meanwhile, Joseph van der Veken, who died in 1964, got his own show, *Fake/Not Fake: Restorations, Reconstructions, Forgeries*, which ended last February at the Groeninge Museum in Bruges, Belgium.

And John Myatt, a convicted forger spent four months in jail and then exhibited his fakes at a gallery in England in 2003. By then the forgeries contained a microchip so that they could not be mistaken for the real thing. Prices for the fakes ranged from around \$1,000 to \$10,000. He has used K-Y jelly to add body to his brushstrokes.

Other forgers are also still troubling the art market, judging by an ARTnews survey of dealers, auction-house officials, museum curators, conservators, scholars, and former agents of the Federal Bureau of Investigation and Scotland Yard.

Although Joni was arrested a few times for altercations—he obviously had a temper—he was never accused of forgery. Why? He only made original work that seemed to be old, and as they went from dealer to dealer, they became old.

“Newly Discovered Munch Work Unveiled,” *Expatica* (Netherlands), 06/03/05.

The Bremen Kunsthalle art museum on Friday put on display a previously unknown painting by Norwegian master Edvard Munch, depicting a naked girl appearing to be threatened by a vision of the faces of three men... The painting was discovered while restoration work was being done on the Munch painting ‘The Dead Mother’... The symbolist-style painting, measuring 90 by 100 centimetres, is estimated by art experts to date to around 1898.

“Saving Machu Picchu,” *The Independent* (UK), 06/06/05.

Peru has unveiled a new conservation plan for Machu Picchu. The plan includes restricting the number of visitors. With the defeat of the Shining Path terrorist movement in the 1990s, Peru has been “rediscovered” by the international tourism industry, and the hordes of visitors are causing erosion and other damage to the archaeological site which extends over some 76,000 acres. In addition, mummies dating from the Inca period are being exposed to the elements and wild orchids are threatened by the increasing pollution.

“Statue Of Ancient Pharaoh Found,” *Discovery*, 06/06/05.

A life-sized statue of the 13th Dynasty Pharaoh Neferhotep I has emerged from the ruins of ancient Thebes in Luxor. Buried for almost 3,600 years, the six-foot limestone statue shows the “beautiful and good” pharaoh — this is what Neferhotep means — wearing the royal head cloth.

“Warhol Foundation Files For Copyright Violation,” *CBC*, 06/09/05.

The Warhol Foundation has filed a copyright infringement lawsuit against a website that offers “museum-quality copies of famous masterpieces painted by our Thai artists totally by hand.” The site offered oil-on-canvas copies of famous

works created by a studio of artists in Thailand. Many artistic tastes were represented — from pop artists like Warhol and Roy Lichtenstein to impressionists Auguste Renoir and Claude Monet — for prices ranging from \$250 to \$500.

“Acropolis Repairs Drag On,” *The Guardian* (UK), 06/10/05.

The poor Acropolis is in great disrepair, and preserving it has been problematic. Thirty years after Greek conservationists launched the biggest restoration project in modern history, the works have become dogged by controversy, and the government in Athens has now revealed that at least 20 more years — and up to €70m (£47m) — will be needed to finish the project. The restoration is causing political ructions in Greece, not least because nobody knows where the money will come from.

“Looking Through Vasari At Leonardo (His Greatest Work?),” *Discovery*, 06/16/05.

Is the painting considered Leonardo’s greatest work, on a wall behind another painting by Vasari? A scientist using sophisticated scanners thinks he’s discovered it. “We looked through Vasari’s painted walls with a low-frequency sonogram machine. On the west wall we found nothing really significant. But on the east wall, beneath the Battle of Marciano, we spotted a 16-centimeter cavity. It is very likely that Vasari created it to protect Leonardo’s work. Amazingly, this hollow space is right under Vasari’s hint ‘seek and you shall find.’”

“Major discovery on eve of obelisk’s return,” *The Art Newspaper*, 06/23/05.

An important discovery has been made by Unesco archaeologists who were sent to Ethiopia to prepare for the arrival of an ancient obelisk finally returned by Italy after years of delay. At the ancient site of Axum, underground chambers and arcades were found near the original position of the obelisk, beneath an area converted into a parking lot in 1963.

The Unesco team, headed by Neapolitan archaeologist Rodolfo Fatovich, found that the site had been a royal necropolis for several dynasties before the kingdom adopted Christianity in around 325 AD. Axum, which dates from 100 BC, was inscribed as a World Heritage Site in 1980.

The discovery, announced last month, was made in the central area of Axum, where the obelisk removed to Rome originally stood. It had been seized by Mussolini in 1937, and its return has been a long-running saga. The 25-metre-high obelisk was finally flown into Axum in three sections, between 19 and 25 April. The hope is that it will be re-erected by October.

“Traces of hidden Leonardo sketch revealed,” *The Guardian*, 06/01/05.

The National Gallery revealed yesterday that it owns a previously unknown work by Leonardo da Vinci but will never be able to exhibit it. The first scientific study of *The Madonna of the Rocks*, a beautiful but puzzling painting which, some suggest, is a studio copy of an original in the Louvre, has disclosed preparatory drawings for a completely different picture. Under an infrared camera, layers down, beneath the drawings for the present painting, an entirely different image shone out: a kneeling woman, one arm folded across her breast, one flung out, probably intended as a Madonna looking down on a sleeping infant who was never drawn in.

“A Tale Of Two Lloyd Wright Houses,” *Los Angeles Times*, 07/03/05.

One Los Angeles Frank Lloyd Wright house renovated, another falling down a hill. If only it were that simple. It turns out that Ennis-Brown, once you get past the gaping holes on its lower flank, looks surprisingly good, particularly its stunning split-level living and dining room space — though that shouldn’t dissuade you from making a donation to help shore it up. And at the Barnsdall House, the handsome renovations can’t disguise the dispiriting mess the city has made, and continues to make, of its site or that behind its low walls is one of Wright’s least appealing domestic interiors.

“Theatre Restoration Reveals Tiffany,” *Philadelphia Inquirer*, (AP) 07/08/05.

While restoring the old Hudson Theatre in Times Square, workers find some hidden Tiffany. The restoration of the landmark theater, now part of the Millennium Broadway Hotel conference center, began in November. Although the triple-domed stained-glass ceiling in the green marble lobby was known to be the

work of Louis Comfort Tiffany, the discovery of turquoise, orange, and mauve mosaic tiles by the glass designer around the stage arch, box seats, balconies, and columns was unexpected.

“Stonehenge Quarry Discovered,” *Discovery*, 07/12/05.

It's only taken 4,500 years, but the quarry from which the stones for Stonehenge were taken in 2,500 BC has been found. Archaeologists have long suspected that the bluestones, which form Stonehenge's inner circle, came from the Preseli Hills, but no evidence of a quarry had been found in the area. Darvill and Wainwright report that geochemical analysis show that the rock formations at the prehistoric quarry are identical to those at Stonehenge.

“A Paint Roller That Paints Images,” *Discovery*, 08/01/05.

A new high-tech paint roller allows images to be transferred in the paint. The Pixel Roller picks up paint from a tray, like any other paint roller, but is controlled electronically by a computer to transfer pixilated images onto any surface — floors, walls, ceilings, brick, concrete, and glass — and at just about any scale.

“Selling Out,” *The New York Times*, 07/17/05.

It has now become the norm for museums to sell their art, rent their space for blockbuster exhibitions, and otherwise exercise judgment more indicative of a for-profit corporation than a non-profit keeper of culture and art, says Michael Kimmelman. A steady corrosion of faith in the integrity of institutions will be the long-term price for short-term wheeling and dealing. With faith goes the delicate ecosystem of charitable contributions and tax-free privileges. Why, the public will ask, do institutions like these reap the benefits of nonprofit status if they service private interests who shape the content of what's on view and/or reap cash rewards?

“Italy: Anti-terror Plan for Art Cities,” *AKI*, (Italy) 07/18/05.

Italy has announced heightened plans to protect cultural sites from terrorist attack. Measures will include placing metal detectors in museums, a complete ban on backpacks and bags, the cordon-

ing-off of areas adjacent to monuments, and monitoring of queues. Florence, Venice, Rome and Palermo, as well as Assisi and Pompei are likely to top of the list of cities where the anti-terror measures will be deployed.

“On the lookout for Smilodon Fatalis,” *Los Angeles Times*, 06/24/05.

Much of the public discussion surrounding an upcoming expansion of the Los Angeles County Museum of Art's mid-Wilshire campus has been about money. So far, not much has been said about fossils. In March, the museum announced it had raised \$156 million, enough for a first phase of construction — a turning point for LACMA, which had to abandon an earlier, more sweeping plan as too expensive. But now, as the campus readies for new construction, the issue is pre-history: The 23-acre Hancock Park property, which includes LACMA and the county-owned Page Museum at La Brea Tar Pits, contains one of the richest Ice Age fossil sites in North America.

“Jesus Got A New Halo. Who's The Guilty Party?” *Baltimore Sun*, 07/23/05.

Over the course of nearly 150 years, two enigmatic paintings at St. Ignatius Roman Catholic Church have been treated as anything but masterpieces. They've been stashed away in closets, ripped, faded and - perhaps worst of all - touched up at the hands of a well-meaning, but ill-advised, artist. That apparent artistic license has been particularly puzzling to current church officials and a German conservator as they worked to restore the paintings, ignored for years but now believed to be the work of 19th-century Italian master Constantino Brumidi. Who would have painted a completely different halo over Jesus' head, or given him a full new beard?

“Massive painting being restored,” *Los Angeles Daily News*, 08/02/05.

Conservators are working to save one of the largest paintings in the world - a 45 feet-by-195 100-year-old religious work in California. Using 4-foot-long brushes, Polish artist Jan Styka completed the painting of the Crucifixion in 1897 after working on it 12 hours a day for five years. Officials hope the work

is done by next year so the painting can be unveiled to the public on Good Friday with an all-new presentation. Styka, who died in 1925, never saw his painting again after he brought it to America. He is buried at the Glendale mortuary park, in the Memorial Terrace. Still, he managed to memorialize himself into the scene of the painting: He painted St. Paul in his own image.

“State Examines Spending at Getty,” *Los Angeles Times*, 08/02/05.

In the latest in a series of setbacks for the world's richest art institution, the California attorney general's office has opened a wide-ranging inquiry into financial practices at the J. Paul Getty Trust, according to a confidential memorandum. State regulators also have asked for documents connected to criminal charges pending in Italy against Marion True, the Getty's curator for antiquities, for allegedly conspiring to purchase looted artifacts.

In the past, Getty officials have denied that Munitz's practices were out of step with the law. The attorney general's office is likely to look for patterns of excessive spending or instances when Getty resources may have been diverted for personal benefit, they said. *The Times* reported in June that Munitz has traveled the world first-class at Getty expense, sometimes with his wife. His total compensation, which topped \$1.2 million in the fiscal year ending June 2004, ranks him among the nation's highest-paid nonprofit leaders.

The attorney general's inquiry adds to the troubles that have surrounded the Getty since late last year. Museum director Deborah Gribbon abruptly resigned in October, citing differences with Munitz. Her position has yet to be filled, and her interim replacement has taken a job elsewhere. If state regulators were to conclude there had been misuse of the Getty's resources, they could impose penalties, require the misspent money to be repaid, or, in an extreme measure, remove trustees.

“Lopping a Large Chip off a Very Old Block,” *OpinionJournal.com*, 08/03/05.

An Italian quarry wants to lop 300 feet off the top of a mountain. But it's been said Michelangelo quarried marble from the place and so a dispute

NEW DOCTORAL PROGRAM IN PRESERVATION STUDIES

The University of Delaware announces the establishment of a new interdisciplinary graduate program leading to a Ph.D. in Preservation Studies.

The program teaches the philosophies, research methodologies, and policies informing preservation efforts focused on art, architecture, landscapes, and material culture. Doctoral students explore questions regarding individual objects and works of art, collections, buildings and structures, or sites and landscapes. Ph.D. candidates learn to assess the significance and cultural contexts for the production, function, and preservation of visual and material culture; to identify, evaluate, and implement preservation practice and policy; and to integrate ideas and methods from the full range of preservation disciplines.

Areas of concentration include Historic Preservation Planning (including Structures, Landscapes, and Preservation of Social and Cultural Context), Preservation Technologies, Conservation Research and Technical Studies, and Heritage Management.

Applicants must hold a Masters Degree in a discipline relevant to one of the program, concentrations. Program requirements include 18 credits of coursework relevant to the dissertation topic. The mix of courses will be individually selected but balanced to provide an introduction to the wide range of theoretical and methodological issues as well as to support individual preservation research endeavors.

A non-credit seminar for presentation of research-in-progress is also required for three semesters, and at least nine credits of Ph.D. dissertation research. Proficiency in one or more foreign languages is required for certain areas of concentration and/or dissertation topics, as determined by the chair of the dissertation committee. Likewise, proficiency in certain practical laboratory techniques may be necessary for certain concentrations. All students must pass a written qualifying examination in the area of concentration, must complete a dissertation that reflects the results of original and high quality research of significance to preservation

AYMHM, continued

has ensued. The historical record, including Michelangelo's own abundant correspondence, shows clearly that he never took any marble from Monte Altissimo. He did open two quarries farther down the Serra gorge and nearly lost his life extracting enormous columns and blocks. But he never got to use any of them; the project for which they were intended, an overambitious façade for Florence's San Lorenzo Church, was aborted and his hard-won marble scattered and purloined.

“Three Groups Join in Effort to Save Wright's Ennis House,” *The New York Times*, 08/04/05.

In a last-ditch effort, a consortium of preservation groups has assembled a plan to save the Ennis House, a striking 1924 building by Frank Lloyd Wright in the Los Feliz Hills above Los Angeles. The National Trust for Historic Preservation, together with the Frank Lloyd Wright Building Conservancy and the Los Angeles Conservancy, has created a foundation to raise the millions of dollars needed to rehabilitate the house, which suffered critical damage in a 1994 earthquake and again in heavy rains last winter.

“Artist to create laser versions of destroyed Buddhas,” *Toronto Star* (AP), 08/09/05.

International outrage was sparked in 2001 when Afghanistan's repressive Taliban regime ordered two 1,600-year-old statues of Buddha in the country's Bamiyan Valley destroyed, but

studies, and conduct an oral defense of the dissertation.

The annual deadline for submission of all application materials is February 1. Applicants are strongly encouraged to explore possible dissertation topics with program faculty prior to the deadline. The Ph.D. Program in Preservation Studies is administered by the Center for Material Culture Studies. For more information on the program and application requirements, contact Dr. Joyce Hill Stoner, jhstoner@udel.edu <<mailto:jhstoner@udel.edu>>, Director, Preservation Studies Program.

despite pressure from Western countries to preserve the massive artifacts, the statues were wiped out.

Now, a Japanese artist plans to commemorate the Buddhas with a laser-based installation in the Bamiyan Valley which is drawing funding from the United Nations. “Fourteen laser systems will project 140 overlapping faceless ‘statues’ sweeping four miles across Bamiyan's cliffs in neon shades of green, pink, orange, white and blue.”

“Return of the artist who couldn't spell,” *San Francisco Chronicle*, 08/10/05.

The Miami muralist who misspelled Shakespeare, Michelangelo, and nine other famous names on a mosaic outside the Livermore (CA) library slipped into town to correct her errors -- at a cost of \$6,000 to the city. And this time, city officials promise they have checked her work before it gets set in stone.

“U.S. explorers to mine alpine lake for Nazi loot,” *San Francisco Chronicle*, 08/14/05.

At the end of World War II, the Nazis used military trucks for months and months to dump in crate after crate of stolen art, money, and treasure into Austria's Lake Toplitz. The Nazis eventually commissioned locals to do the deed, bringing the crates by oxcart, transports which occurred more and more frequently in the frantic last days of the war. While some of the treasure was recovered after the war, much is still there, and authorities are now worried that repeated search missions are harming the lake.

“Peruvian pyramids rival the pharaohs’,” *The Times* (UK), 08/20/05.

Ruins on Peru's desert coast are 4,700 years old and suggest civilization in the Americas is far older than previously thought. The site of Caral, in the Supe Valley north of Lima, covers 66 hectares (165 acres) and includes pyramids 21m (70ft) high arranged around a large plaza.

Whether it can truly be seen as a civilisation comparable in attainment with contemporary Egypt and Mesopotamia is doubtful, but it demonstrates that the tradition culminating in the Inca Empire had deeper roots than anyone imagined.