
REGIONAL RAP ALLIANCE for RESERVATION

September 1997

Part of a one-year demonstration project to share preservation training resources

Defense Against Disaster

— *by Christine Wiseman and Tom Clareson*

Our nation's historical collections are threatened by a wide range of emergencies and disasters. Disasters come in many forms, from natural disasters (earthquakes, hurricanes, floods, and tornados) to emergencies resulting from deferred maintenance, accident, and negligence (burst pipes, fire, mold). The most recent predictions from the National Weather Service and insurance industry strongly indicate an increase in the numbers of natural disasters.

Libraries, museums, and archives have the responsibility of protecting their staff and patrons from harm during a disaster, as well as protecting the collections they hold in the public trust. No amount of preparedness can completely eliminate the chance of a disaster striking your institution. However, you can significantly minimize the amount of damage. Developing an institutional emergency preparedness and response plan is a crucial step in reducing potential losses.

Developing a disaster plan can be a daunting task that requires staff training, coordination, and planning to be effective. Regional preservation field services can assist institutions in disaster planning and recovery. One- and two-day workshops offered throughout the country introduce participants to issues of preparedness and recovery. In addition, regional programs offer publications and free leaflets, including fill-in-the-blank plans, bibliographies, checklists, building survey forms, and recovery guides.

In the event of a disaster or an emergency, regional field services are available for phone consultation to assist in recovery operations and referral to a recovery company or conservator. For more information, contact your local regional field service program. Information on preservation services in your area can be found at the RAP Website, <http://clir.stanford.edu/rap/>. ■

Centers Assist with Small-Scale Disasters

— *from CCAHA*

A broken pipe ... a clogged drain ... a leaking roof. These are typical small-scale disasters — and the most frequent threat to original collections. Although small-scale, these events may be as damaging to institutions as the consequences of larger catastrophies. As with all disasters, the keys to limiting losses are prior planning and fast response. The Conservation Center for Art and Historic Artifacts (CCAHA) and all regional centers frequently assist institutions with immediate response and conservation treatment for damaged collections. CCAHA also has been leading efforts to establish emergency readiness programs for the Philadelphia area.

Case History: Philadelphia City Archives

Corrosion and dirt blocked an air conditioning drainage pipe at the Philadelphia City Archives one August weekend. On Monday morning a staff archivist discovered a steady stream of water flowing through the ceiling onto one of the Archives' most valuable record series. Two inches of water had collected on the floor and was spreading to adjacent rooms. The archives staff and building management worked quickly to protect the collection, address the cause of the leak, and air-dry the wet books. Several thoroughly soaked volumes were frozen.

CCAHA was called in to complete the recovery operations. The initial assessment indicated that to return the 108 wet books to usable condition five basic treatments were necessary — drying, flattening, repair, rebinding, and boxing. Once all the volumes were dried, damaged materials were sorted and final recovery began. CCAHA's staff undertook repair of paper, texts, and book structure. CCAHA subcontracted with vendors for freeze drying, library binding, and box making. The collection treatment was completed over several months. Meanwhile, as the collection was under treatment, at the Philadelphia City Archives the air-conditioning unit was repaired, and, as a final safeguard against a reoccurrence, the stacks were rearranged.

Help in the Future

Help for institutional readiness is available. CCAHA, with funding from the William Penn Foundation, has instituted a model program for regional emergency preparedness. The program includes planning assistance and the development of regional resources, including information guides and the stocking of recovery supplies. Since 1994, CCAHA has been training a core group of regional disaster volunteers made up of staff members of local institutions. ■

Protecting Books and Paper Against Mold

— from *NEDCC*

All About Mold

Mold is a serious problem for paper collections. Mold grows on organic materials such as paper and leather. Mold digests book binding adhesives, gelatin, paper sizing, and cellulose, altering and weakening them. Many fungi contain colored substances, such as melanin, which stain paper, cloth, and leather.

Mold can be dangerous to people as well as to collections. Disease and/or allergic reaction can result from handling contaminated materials. Precautions must be taken when handling affected books or paper.

Mold propagates by airborne dissemination of spores, which will alight anywhere and, under the right conditions, will germinate. Fungi stop growing and become dormant when environmental conditions become unfavorable, for example, when drying occurs. When dormant, spores are inactive and less of a threat to cultural property. This rest period, however, is reversible. Given the right circumstances, the spores will revive and start growing even if they have been frozen or dried.

Mold requires nutrients as well as moisture to grow. Moisture in the air is measured as relative humidity (RH). In general, the higher the RH the more readily mold will grow. If RH is over 70% for long periods, mold growth is almost inevitable. Warm temperatures are also conducive to mold growth.

Controlling Mold — Preventive Measures

Fungi are difficult to eradicate once they begin to grow, and options for treatment are limited. As in all preservation matters, prevention is definitely the best policy. These general recommendations will discourage fungal growth.

- Relative humidity should never exceed 55%; it should be lower if possible. Temperature seems to be less critical for mold control but should be kept constant and below 70 degrees F. Some air circulation is desirable.
- Do not store materials in damp areas of the building or where there are water hazards, such as under leaking roofs or pipes.
- Areas where collections are stored and used must be kept as clean as possible. Clean floors by vacuuming using a machine equipped with a HEPA (high-efficiency particle) filter. Shelves should be vacuumed or cleaned with a magnetic wiping cloth.
- Check incoming materials carefully for signs of mold. Several days in a quarantine area are recommended for new acquisitions.
- Regularly inspect the HVAC system, which is a good breeding ground for mold. Regularly clean the heat exchange coils, drip pan, and ductwork.
- Change air filters frequently.
- Prepare a disaster plan, which every institution needs. A mold outbreak is often a consequence of an accident involving water. Rapid response will prevent fungal growth, but it must be rapid, within 48 hours, and sooner in warm, humid weather.

In Conclusion

Spores, active or dormant, are ubiquitous. Although it is impossible to get rid of all the spores, fungal growth can be controlled. Most important

for mold control is maintaining RH conditions below 55%, or, better, below 45%. Use of protective enclosures, meticulous housekeeping, monitoring of RH and temperature, and a watchful eye are also important. If resources allow, high-level filtration of storage areas, if not of the whole building, is recommended.

If Mold Occurs

Contact the Northeast Document Conservation Center or your nearest regional preservation center for assistance. ■

Field Services Contacts

The AMIGOS Preservation Service AMIGOS Bibliographic Council, Inc.

Tom Claeson or Steve Smith
12200 Park Central Dr., Suite 500
Dallas, TX 75251-2104
(800) 843-8482 or (972) 851-8000 • Fax: (972) 991-6061
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CCAHA

The Conservation Center for Art and Historic Artifacts

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NEDCC

The Northeast Document Conservation Center

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SOLINET

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Response to Large-Scale Disaster *

— by *Kristin Cheronis, Senior Objects Conservator, The Upper Midwest Conservation Association*

The Upper Midwest Conservation Association in Minneapolis has over the last ten years responded to more than twenty museum disasters. Although most of the disasters were relatively small in scale, affecting only a single museum, there have been two large-scale disasters that have required responses from UMCA. The severe flooding in the Midwest in 1993 wreaked havoc on hundreds of museums and historic sites across a five-state region. The second disaster occurred this past spring, with severe flooding caused by spring melt of record snowfalls in the Dakotas and Minnesota. Terrible flooding damaged many towns and cultural collections along the Red and Minnesota Rivers. The following case studies illustrate the creative measures that are required when natural disaster strikes and the extensive planning and communication that must occur in the early stages.

Granite Falls

Our contact with the Yellow Medicine County Historical Museum in Granite Falls, Minnesota, came in the second week of April while four feet of the Minnesota River was still flowing through their museum. They had not been able to evacuate or move any of their collections to higher ground, and the water would not recede enough to allow entry to the building for three more days. A description of the collections indicated that several thousand artifacts, most made from sensitive organic materials such as paper, hides, textile fibers, etc., were crushed, disarticulated, and saturated with contaminated and muddy water. We knew a full-scale recovery was warranted and began to prepare a plan.



Granite Falls. Artifacts are sorted, washed, and dried.

With three days before we would be allowed onsite, we worked full-time with the museum's director to get the site as equipped and ready as possible. A generator and pump were used to empty the building slowly. Sustained efforts went into finding an available artifact recovery center not already claimed by flood refugees, the Red Cross, or other groups. It had to have electricity, security, and, preferably, water. Although it was a high priority in the preparations, a recovery center was not secured until several hours after we had arrived on site three days later! A donated

freezer truck and a semi-truck for dry artifacts were also acquired and parked on high ground (to avoid a second flooding of the museum if the dike upriver should go). We purchased and secured donations of the supplies needed, and solidified our UMCA team of four. The museum put calls out on the radio asking for volunteers, and many people showed up to help.

We spent four days in cold and wet conditions, removing the damaged, sodden, and contaminated collections.

We spent four long days onsite in cold and wet conditions, removing the damaged, sodden, and contaminated collections carefully. Those materials that could be prepared for freezing were sorted and loaded into the refrigerated truck. Those that could not be frozen were packed for the eleven-mile drive to the recovery center, while those that were dry were loaded into the dry semi. The recovery center was an old school auditorium and proved very conducive to basic recovery methods and procedures: washing when possible, controlled drying, and prevention of biological and botanical growth. At all sites, we had conservators working alongside and teaching the museum staff and volunteers how to support safely and remove artifacts from the museum; how to support and pack items for the freezer; how to pack items for travel to the recovery center; and how to care for items at the recovery center. After all the artifacts were removed from the museum, a half day was spent doing intensive work and training at the recovery center where much of the work would continue after we left. Upon return to the lab, we prepared written follow-up instructions that reiterated our training and instruction for the successful completion of the stabilization of the artifacts.

Grand Forks

The two rivers continued to crest in more towns, and more calls continued to come in. The Grand Forks County Historical Society called to report that their valiantly sand-bagged dikes had finally failed during the night. Their basement artifact storage area, with 3,000 to 5,000 artifacts, was now completely submerged in eight feet of water. Furthermore, the water was contaminated with sewage, gasoline, and unknown chemicals. The basement would have to remain under water for two days before anyone would be allowed in the building. For safety reasons, the pumping-out process would take another three days. The collections under water included textiles, paper, books, metals, ceramics, wood, leather, etc. Again, it seemed imperative that we respond immediately with a full-scale, onsite recovery. We began planning in similar ways to the earlier recovery, procuring supplies and equipment, organizing a team and a plan, and making sure that the site was as prepared as possible when we arrived.

There were several important differences between the Granite Falls and Grand Forks recoveries. One was that the State Historical Society of

Large-Scale Disaster *continued on page 4*

North Dakota in Bismarck, along with museums in the surrounding counties, committed experienced and motivated staff members to assist in the Grand Forks recovery. Another difference was that the entire region was much more severely affected by the flooding.



Grand Forks. Final group photo in front of the freezer truck

It took three days and the National Guard to get a generator and pump to the site to begin pumping water. Once onsite, we toured the just-pumped-out museum storage area, only to be immediately overwhelmed by the daunting task. The sewage smell was powerful, and every square inch of every overturned shelving unit, box, and artifact was covered in a thick slippery layer of river silt and contaminants. It was emotionally wrenching to view this kind of destruction, to see a rack of carefully rolled quilts completely soaked, covered in black silt, and with a thick furry mold growth beginning to appear.

It was emotionally wrenching to view this destruction.

We prepared three small separate buildings at the site for use as recovery centers. The donated freezer truck showed up as promised, and the washing and freezer-packing stations were established. Then, dramatically, the temperature dropped fifteen degrees, the wind rose, and the rain came steady and hard. It never let up again until we were done three days later. The lawn around the museum turned into a mudbath. Sandbags used for the dikes had to be redistributed to make safe pathways to transport the fragile, weakened artifacts. The humidity was so high that the people working in the freezer truck could not see through the billowing condensation, and the sewage and mud that coated them froze into ice on their faces. It was the most unpleasant recovery experience any of us has ever experienced, and yet all of these professional people just kept working.

In three days we had emptied the entire collection into either the recovery centers or the freezer truck. Following standard recovery procedures, we had washed, supported and wrapped hundreds upon hundreds of

items for freezing, and had washed, blotted and supported, and changed endless blotters for many hundreds more. Fans were circulating the air, mold growth was well under control, and the staff who would remain on site were well prepared to continue completing the drying and stabilization. It was a heroic and successful effort, to which many people contributed. As we gathered for a final group photo in front of our freezer truck, the rain let up and the sun came out, and there was a tremendous feeling of satisfaction, accomplishment, and relief.

The Aftermath

Most of the affected museums in the region are still working on their recoveries. The flooded and contaminated buildings have been cleaned and have dried out, but much work remains to be done. The artifacts are currently either dry or remain frozen. Most of the dry artifacts are stable, but some will require further cleaning or stabilization. Funds need to be raised for storage materials, and thousands of artifacts will have to be sorted, checked against records, and re-boxed for storage. Most of the affected museums do not have the funds for costly freeze-drying. They are considering their options for this material. Several workshops are being considered for the museums and collections in the region. Disaster preparedness, disaster response, and basic recovery techniques for damaged materials are all topics of interest.

Response to large-scale disaster is uniquely complicated and taxing. It is also ultimately very rewarding, as you are able to help entire collections and to work with truly committed, talented, and generous colleagues and volunteers. UMCA thanks the National Endowment for the Humanities for its support, made available from the Chairman's Emergency Fund. ■

**This article is excerpted from a longer report available from UMCA.*



The Upper Midwest Conservation Association

The Upper Midwest Conservation Association (UMCA) is a non-profit regional center for the preservation and conservation of art and artifacts, providing treatment, education, and training for museums, historical societies, libraries, and other cultural institutions. UMCA is located at the Minneapolis Institute of Arts and is celebrating its 20th year in 1997. Five conservators provide treatment work on paintings, works of art on paper, and general objects from sculpture to furniture and other decorative arts objects. UMCA provides services to its ninety institutional members as well as to non-member collecting organizations and to private individuals. UMCA provides services primarily in a five-state region (Minnesota, Wisconsin, Iowa, North Dakota, and South Dakota) but occasionally works outside of that region.

Twisters, Quakes, and Workshops

—from *AMIGOS*

It's midnight, and a tornado just ripped a hole in the roof of your library. Rain is pouring through the hole, onto your children's book collection, and it doesn't look like the storms will stop for the next three days....

...What is your first action?

Three of the four walls of your institution have been blown out or have collapsed. The popular genealogy and local history collections have been blown off their shelves, and are lying in six inches of water. The relative humidity is the same inside the library as it is outside — close to 100%. And wet ceiling tiles, now the consistency of mashed potatoes, have fallen in piles on the floor, obstructing the path for recovery crews. ...

...You don't have a disaster plan, but you wish you did!

These scenarios are real — from two Texas libraries badly damaged by tornadoes in the spring of 1994. The libraries, through a local consortium, contacted the AMIGOS Preservation Service, which dispatched staff onsite to assist with recovery and work with commercial disaster recovery personnel.

Onsite assistance is something regional preservation and conservation centers can provide, but hope they don't have to! Centers would rather work with repositories to train individuals in response and recovery and to prepare a disaster plan.

Centers can develop workshops tailored to the type of disaster for which the risk is highest in your area. For example, the State Librarian of Arkansas asked AMIGOS to address the risk of earthquakes in his state due to the New Madrid fault, as well as the ever-present risk of tornados, some of which have recently vented their wrath on Arkansas. In Fall 1996, AMIGOS presented a workshop, "Twisters and Quakes: How Your Library Can Survive," in Little Rock for 26 attendees from across the state.

Collections-care for library, archival, museum, and historical-society materials are the chief mission of the regional centers. When disaster strikes your collection, we can provide cooperative collections-care at its best, to help your institution deal with the worst possible situations. ■

Active 1997 Hurricane Season Predicted

—from *SOLINET*

We are well into the 1997 hurricane season, and forecasters predict it will be another active one. The season lasts from June 1 to November 30, with 11 named tropical storms predicted. Of the seven hurricanes expected to form from these storms, three are predicted to be intense.

For the past two years, SOLINET Preservation Field Services staff have been tracking where landfall is predicted to occur and sending hurricane-preparedness and disaster-recovery information to institutions in the potentially affected areas. This season we remind you that we are here to help when your institution is threatened by a hurricane or has suffered storm

damage. Listed below are free leaflets and information about ordering the SOLINET/Chicora Foundation joint publication on hurricane preparedness. To request or order these materials, contact Alicia Riley at (800)999-8558 ext. 205. Three of the leaflets (denoted with an asterik) are available full-text at the SOLINET Web site: <http://www.solinet.net/presvtn/preshome.htm>.

Leaflets

Checklist of Disaster Recovery Resources

* *Contents of a Disaster Plan*

* *Disaster Recovery Services & Supplies: A Selected List of Sources*

* *Resources on Disaster Preparedness*

Strategies for Emergency Preparedness: Typical Supplies of an In-House Stockpile

Publication

Trinkley, Michael. *Hurricane! Surviving the Big One: A Primer for Libraries, Museums and Archives*. Columbia, SC: Chicora Foundation, 1993. 75 pp. How to survive a hurricane through appropriate advance planning. Topics include designing buildings to minimize hurricane damage; retrofitting existing structures to improve survivability; and actions to take before, during, and after the storm. Price \$12, includes S&H. Prepayment is required.

If you are interested in contracting with SOLINET for a hurricane-preparedness workshop, contact Julie Arnett at ext. 256, or by e-mail. ■

National Task Force Developing Response Workshop

The National Task Force on Emergency Response, in addition to the development of the Emergency Response and Salvage Wheel,* is taking steps to ensure that cultural institutions receive the best possible training in collections salvage.

On June 29-July 2, 1997, a group of 30 preservation and conservation professionals met in Washington, DC, for a Curriculum Development Pilot Workshop on Emergency Response for Cultural Institutions. The objective was to design a curriculum for a two-day workshop in disaster response that can be used as a model for trainers presenting workshops to staff members of all types of cultural institutions. The workshop will focus on imparting response procedures to be used in the first 48 hours after a disaster.

The developers hope to present the pilot workshop in Spring 1998. Jill Rawnsley, Director of Preservation Services for CCAHA, serves as the Regional Alliance for Preservation representative to this group and is gaining the input and support of the Cooperative Preservation Programs Group, which represents local, state, regional, and national multi-institutional preservation programs. ■

* See *For Further Information*, page 6.

For Further Information

In Print

***Can You Stand the Heat?: A Fire Safety Primer for Libraries, Archives, and Museums.* 1993.**

Michael Trinkley, Director of the Chicora Foundation, Columbia, SC.
— Covers fire detection, alarms and signaling, fire suppression systems. 80 pages. Includes 21 diagrams, illustrations, photos, and bibliography. Available from SOLINET, \$10/copy postpaid, quantity discounts available.

***Emergency Response and Salvage Wheel.* 1997. National Task Force on Emergency Response.**

— Resource developed by cooperative public-private effort to protect the nation's cultural heritage from natural disasters. Provides quick access to essential information on protecting and salvaging collections during the first 48 hours of an emergency. Available for \$9.95 (\$5.95, non-profit and government rate) from National Task Force on Emergency Response, 3299 K Street NW, Washington, DC, 20007. Phone (888)979-2233.

World Wide Web Sites

General Information

Disaster Recovery Journal

<http://www.drj.com> — Resource for research, articles, seminars, and links to recovery service providers. Chat Forum.

Primer on Disaster Preparedness, Management, and Response: Paper-Based Materials

<http://palimpsest.stanford.edu/bytopic/disasters/primer>

— Selected reprints from various sources.

WAAC Newsletter

<http://palimpsest.stanford.edu/waac> — Articles on disaster response, including floods, disaster mitigation, earthquakes, fire suppression systems.

Insurance and Risk Management

The Chubb Corporation: Insurance Library

<http://www.chubb.com/library/> — Information about insurance policies, claims, procedures, and other topics.

Internet Resources for Risk Management and Information Systems

<http://rmisweb.com/> — Articles from trade journals on risk management and information technology.

Disaster Recovery Services, Vendors, Risk Management Companies

Document Reprocessors

<http://www.documentreprocessors.com/>

Munters Corporation: Moisture Control Services

<http://www.muntersmcs.com>

Pest Web

<http://www.pestweb.com>

SunGard Recovery Services

<http://recovery.sungard.com>

Vidipax

<http://www.panix.com/~vidipax>

Federal Agencies, National Organizations

Federal Emergency Management Agency (FEMA)

<http://www.fema.gov>

Library of Congress Preservation Directorate

<http://lcweb.loc.gov/preserv/>

National Archives

<http://www.nara.gov/> — Under "Professional Services" select "preservation"

National Center for Preservation Technology and Training

<http://www.cr.nps.gov/ncptt>

National Fire Protection Agency (NFPA)

<http://www.nfpa.org>

National Historical Publications and Records Commission (NHPRC)

<http://www.nara.gov/nara/nhprc>

National Institute for the Conservation of Cultural Property (NIC)

<http://www.nic.org>

National Media Laboratory

<http://www.nml.org> — Search for "preservation"

National Park Service

<http://www.nps.gov>

National Trust for Historic Preservation

<http://www.nthp.org>

Society of American Archivists

<http://www.archivists.org>

Weather

National Weather Service

<http://www.nws.noaa.gov/>

US Geologic Survey - natural hazards page

<http://www.usgs.gov/themes/hazard.html>

Weather Channel

<http://www.weather.com>

This newsbrief is written and distributed cooperatively by the preservation field services described in its pages. For additional copies, contact any of the field services. For additional information visit the RAP Website: <http://clir.stanford.edu/rap/>. Support comes from the Commission on Preservation and Access, Council on Library and Information Resources.

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