

NEWSLETTER

When the Collections Aren't Safe

Health and Safety Precautions for Storing and Handling Heritage Collections

While it is important to ensure that heritage collections are receiving the best care possible in order to preserve them for the future, it is also important to provide protection for those staff and volunteers handling these collections. Protection can range from a simple programme of educating staff and volunteers about the potential risks to a more complex programme of identifying the hazards and isolating problematic collections. The actual level of risk will differ greatly from object to object and will be present as a result of the object's history of use, history of care, or from the object's material composition.

An individual can have an immediate reaction to a problem material (acute) or may not show a health problem until much later (chronic) which is often the case if they have been exposed to small quantities over an extended period of time. Part of the safety procedures developed should attempt to mitigate for both these situations.

A good first step is to survey the collections using the risk groups listed in this article as a guide to identifying potential problems. Secondly, research the historic collections care techniques used in your institution by interviewing past and current staff and volunteers. This can provide important clues as to what risks may be present as a result of previous treatments. Remember to document the results. Part of the confusion facing institutions today is a result of little or no documentation from the past, so the obvious conclusion is to also document all current collections care methods in case they might cause concern for others in the future.

If you find collections that fall into the categories listed, label the objects, their storage containers and make a note in the catalogue records. The labelling methods used need to comply with accepted preventive conservation methods and will vary depending on the collections composition and storage methods. For many objects, an acid-free card or Tyvek label may do the job.

If you suspect that items in your collections might pose a serious health and safety risk, it may prove valuable to

Canterbury Disaster Salvage Team – Mandate

The Canterbury Disaster Salvage Team is a group of professionals drawn from the major cultural institutions in Christchurch. It is a non-profit organisation and all team members are volunteers.

We are able to provide the below services to the heritage community as a result of the generous support and goodwill of our employers.

Our main objectives are to provide training opportunities, disseminate information about caring for heritage collections and provide access to trained professionals and equipment in the event of an emergency for those working in the heritage sector.

MEMBERS:

Lynn Campbell, Christchurch City Art Gallery
Cynthia Cripps, Canterbury Museum
Jill Dumey, Macmillan Brown Library
Andreas Eng, Canterbury University Library

Rosemary O'Neill, Christchurch City Libraries
Graham Penwell, Lincoln University Library
Tony Sellwood, RNZAF Museum
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contact your local Occupational Safety and Health representative to get an overview of the issues involved and steps you may need to take.

Once you have a clear idea of what risks might be present, inform current staff and volunteers of these risks and the appropriate precautions to take. If you have an induction programme, adding this information to that process is another very good step. Present the information in such a way as to not create unnecessary panic or an over reaction to the situation as the amount of risk in many cases is very low and easily mitigated.

The next step would be to confirm the actual risk. There are tests available for some of the common problem chemicals present in heritage collections. An example being the spot test for arsenic. Once you have identified that risky collections are present, contact a conservator in your area for an idea of what testing can be done. It won't necessarily be possible to test for all problem chemicals as testing might be prohibitively expensive or may involve destruction of the object.

Risk Origin:

1. History of Use

Many types of collection objects can present a health and safety risk because of their original function. Good examples are surgical equipment, particularly those dating from a time when sterilisation methods did not exist, or weren't very effective. Small amounts of biological material can remain in recessed areas and may lead to infection if a staff member or volunteer is accidentally cut or jabbed by the object during handling.

2. History of Care

Risks in this category are often due to the presence of chemicals used in the past to protect the object from damage by insects or other pests. As an object's history is rarely completely understood, it is good standard practice to treat all objects that have a high probability of having been fumigated with caution. Prime examples in this category are mounted Natural History specimens. Either during the taxidermy process or as part of a fumigation routine, these collections have often accumulated problem chemicals such as arsenic salts, mercuric chloride or DDT. Particularly if they are older specimens made or acquired prior to the 1960s.

3. Object Composition

Even the materials making up an heritage item can pose health risks to the unwary. They may either have been a risk from the very start, eg battery fluid, or have become a risk over time through chemical change, deterioration of protective coatings or by providing a medium for mould growth. A good example of the last group are homeopathic medicines.

Summary of Collection Types and Possible Risks:

(These are general indications only, specifics as to the actual risk and level of risk have not been listed.)

Medical Instruments and Equipment:

- Risk of infections (e.g. blood poisoning or tetanus) from surgical equipment, especially as many such items develop rust as a result of repeated sterilisation
- Radiation from old homeopathic treatment equipment (e.g. Radium water containers used to create 'Radon Tonics')
- Exposure to mercury in old or damaged equipment (e.g.

sphygmomanometers, thermometers)

- Chemicals in testing equipment or machinery

Medicines and Related:

- Ingestion of potentially dangerous chemicals from handling prescription drug containers with residues or the original drug still present (there will also be legal requirements for storage of these items if they are considered a restricted drug, eg cocaine derivatives)
- Allergic reactions or rashes from handling containers of homeopathic and other herbal remedies, either as a result of the plant material present or the mould that can grow on these collections under certain environmental conditions

General Equipment and Machinery:

- Exposure to radiation, e.g. from paints containing Uranium
- Exposure to asbestos or silica from damaged components, e.g. insulating wraps
- Burns or rashes from exposure to battery fluid from damaged batteries or from residues left in equipment where batteries have leaked
- Infections or tetanus if the skin is broken during handling of rusted metal components

Natural History:

- Exposure to arsenic, mercuric chloride, DDT other chemicals used as pesticides, applied either when the specimen was made, or as part of a programme to prevent insect damage
- Exposure to formaldehyde from handling fluid preserved specimens
- Exposure to radiation present in some geological specimens

Ethnological and Social History Objects:

- Exposure to arsenic, mercuric chloride, DDT other chemicals used as pesticides on costume and textile collections to protect against insect damage, e.g. furs, wool, and silks
- Exposure to pesticides used to treat furniture collections
- Poisoning from handling some ethnographic collections, either if the skin is broken or through accidental ingestion, e.g. poisoned arrows, spears, and darts
- Infections or tetanus if the skin is broken (during handling of rusted metal components)

Standard Precautions

By far the most prevalent route that these hazardous materials take to get into a person's system is through ingestion. This may happen after a person has handled collections containing these chemicals with bare hands or cotton gloves and not washed their hands immediately afterwards. The chemicals can then be transferred from their hands to their mouth, usually through eating or drinking (or fingernail chewing for those still trying to kick the habit).

Ingestion can also occur when the chemicals have come off the collection item and either deposited on nearby surfaces, thus becoming part of the dust in the area, or get into the air as the object is handled and then are inhaled. While some may get into the lungs, most become trapped in the mucus membranes of the nasal passages. When the body clears this mucus, it goes into the stomach where the chemicals are then ingested.

Where the problem material is more of an irritant, i.e. likely to cause a skin rash or allergic reaction, then direct contact with bare skin or inhalation are the biggest risks.

Luckily, the standard collections care practices of wearing gloves and regular hand washing provide a high level of protection against exposure to many hazards. Nitrile or latex gloves provide the most protection (although latex can also cause contact dermatitis). Cotton gloves are not recommended in these situations as the chemicals can travel through the weave of the fabric to contact the skin and will remain on the glove making it a risk as well. Especially as cotton gloves tend to be used many times between washings.

To prevent accidental exposure when handling collections that are known to pose high risks, such as Natural History and Medical collections, it is good practice to wear a dust mask as well as nitrile gloves. Protective clothing, such as laboratory coats or overalls are also important and must be washed frequently (or use disposable versions). Also ensure that storage and work areas are cleaned regularly to remove dust and rubbish that could become contaminated.

Additionally, as the problem materials can be deposited in storage boxes or on storage and work surfaces around these collections, it is a good idea to wear gloves and a dust mask while performing scheduled cleanings in these areas. If using a vacuum cleaner, ensure that it has a HEPA filter or it will simply blow any possible risk chemicals around and increase the likelihood of accidental inhalation by staff and volunteers.

Bibliography

The National Park Service in the USA has several *Conserve O Grams* publications available through their website (http://www.cr.nps.gov/nuscum/publications/consveogram/cons_loc.html) that provide valuable advice on the topic of health and safety for museum workers and volunteers. Below is a list of some titles that deal with the topics covered in this newsletter.

Number 2/1, *Hazardous Materials Health and Safety Update*, July 1993

Number 2/3, *Arsenic Health and Safety Update*, September 2000

Number 2/5, *Fossil Vertebrates as Radon Source: Health Update*, July 1993

Number 2/10, *Hazardous Materials in Your Collection*, August 1998

Number 2/11, *Health and Safety Risks of Asbestos*, September 1999

Number 2/14, *DDT Health and Safety Update*, December 2000

Number 2/19, *Guidelines for the Handling of Pesticide Contaminated Collections*, January 2002

To write and request printed versions (if available, this is not clear from their website), the postal address is:

National Park Service
Museum Management Program
1849 C Street, NW
Room NC230
Washington, DC 20240
U.S.A.

Rosoff, Monona. *The Artist's Complete Health and Safety Guide*, 3rd edition, 2001, Allworth Press: New York

Old medical books and drug/equipment catalogues can also help with tracking down the identification of older medicines and equipment.

Canterbury Disaster Newsletters Title List issues 1 through 28

- 1 **April 1992: Dangerous Goods**
Articles: "Storage and Use of Dangerous Goods", J Travis; "Dust", "From our shopping correspondent", Richard Taylor; "Environmental Problems That Could Damage Collections", Lynn Campbell; "Planning for Safe Storage", Rosemary O'Neill.
- 2 **July 1992: Winter Issue**
Guest Editor: Anna Crighton
Articles: "Ready For The Worst?", Anna Crighton, Mavis Emberson, Lynda Wallace.
- 3 **January 1993: Earthquake Issue**
Guest Editors: Lynda Wallace, Richard Taylor
Articles: "Standing on Shaky Ground", Lynda Wallace and Richard Taylor.
- 4 **June 1993: Insects Part I**
Guest Editor: Rosemary O'Neill
Articles: "Prevention of Infestation", Lynn Campbell.
- 5 **October 1993: Insects Part II**
Guest Editors: Caroline Clarkson and Paul Clark
Articles: "Museum and Library Pests and their Control", Anthony Savill.
- 6 **January 1994: Rodents**
Guest Editor: Caroline Clarkson
Articles: "Rodent Control", H Ipenburg.
- 7 **June 1994: Safety of Ceramics**
Editor: Lynn Campbell
Articles: "The Safe Handling and Storage of Ceramics", Rose Evans; "Guidelines for Handling Ceramics", Lynn Campbell.
- 8 **September 1994: Photocopies**
Articles: "Photocopying and Laser Printing Processes – Their Stability and Permanence", Australian Archives.
- 9 **February 1995: Storage of Large Objects**
Guest Editor: Steve Robson
Articles: "Storage of Large Objects", Steve Robson; "Ceramic Storage", Rose Evans.
- 10 **June 1995: Flooding**
Guest Editor: Lynda Wallace
Articles: "Kaikoura: Christmas 1993", Lynda Wallace; "Some Conservation Techniques", extract from *Preservation in Australia and New Zealand Libraries: Principles, Strategies and Practices for Librarians*, Ross Harvey, 1990; "Points to Consider in Preparing for Floods", "Recovery Strategies", extracts from *Disaster Planning and Emergency Treatments in Museums, art Galleries, Libraries, Archives and Allied Institutions*, M.S. Upton and C. Pearson, 1978.

- 11 February 1996: Earthquakes**
 Guest Editor: Emma Vial
 Articles: "After the Quake. Historic Preservation in Los Angeles", John Hinrichs.
- 12 June 1996: Fire at the Canterbury Regional Council**
 Guest Editor: Robert Appel
 Articles: "Fire at the Canterbury Regional Council", Robert Appel.
- 13 December 1996: Building Projects and Renovations**
 Guest Editor: Rosemary O'Neill
 Articles: "The Joys of Dealing with Building Projects and Renovations", Rosemary O'Neill.
- 14 April 1997: Pollutants in Museums**
 Guest Editor: Emma Vial
 Articles: "Pollutants in Museums", Cecily M. Grzywacz and James R. Druzik, Getty Conservation Institute; "Objects and Collections", Janet Bridgland, Getty Conservation Institute.
- 15 July 1997: How to Prepare a Disaster Manual. Notes from the March Workshop**
 Guest Editor: Lynda Wallace
 Articles: "How to Prepare a Disaster Manual", Lynda Wallace.
- 16 December 1997: Assessing Conservation Concerns**
 Guest Editor: Sasha Stollman
 Articles: "Assessing Conservation Concerns", Sasha Stollman; "Canadian Conservation Institute Preventive Conservation Videos". a list of those available from the Canterbury Museum; "Some Useful E-mail Addresses", Rosemary O'Neill.
- 17 April 1998: Packing Objects for Transportation**
 Guest Editor: Lynn Campbell
 Articles: "Introduction", excerpts from the conference pre-prints *Art in Transit*; "Notes On Unpacking From the Robert McDougall Art Gallery", Lynn Campbell; "Inert Packing Materials and Equipment", Sasha Stollman.
- 18 September 1998: Care of Books from the National Library of New Zealand**
 Guest Editor: Lynn Campbell
 Articles: "Fact Sheet: Care of Books", Conservation Services – National Library of New Zealand; "A Beginner's Guide: Lighting For Conservation"
- 19 April 1999: Notes from the Care and Conservation of Photographs Workshop**
 Articles: "Care of Photographs", Conservation Services – National Library of New Zealand; "Chronology of Photographic Techniques".
- 20 September 1999: Glossary of Photographic Terms from the Care and Conservation of Photographs Workshop**
 Articles: "A Glossary of Photographic Processes from the Care and Conservation Workshop", Mark Strange.
- 21 April 2000: Disaster Response Planning at the University of Canterbury Library**
 Articles: "Disaster Responso Planning at the University of Canterbury Library", Andreas Eng.
- 22 November 2000: Sprinklor Systems**
 Articles: Excerpts from various technical leaflets.
- 23 February 2001: FIRE- Prevention Possibilities, Recovery Equipment**
 Editor: Cynthia Cripps
 Articles: "An Ounce of Prevention...", Cynthia Cripps; "Conservators and Experienced Personnel on the South Island"; "Disaster Recovery Equipment Available for Loan or Hire in the Canterbury Region"
- 24 September 2001: HANDLE WITH CARE- Summary of the Workshop and Related Topics**
 Editor: Cynthia Cripps
 Talk Summaries: "How To Build A New Cultural Facility", Roland Fretwell, Project Manager – Buchan Group; "Safeguarding Books", Dave Ashman, Senior Book Conservator – National Library of New Zealand; "Moving Collections Safely", David Reeves, Registrar – Auckland City Art Gallery; "National Preservation Office: An Update – Standards On Storage", Jocelyn Cuming, National Preservation Officer – National Preservation Office; "Hydestor Product Overview", Bruce Rogerson.
- 25 February 2002: Attaching Catalogue/Accession Numbers to Collection Materials**
 Editor: Cynthia Cripps
 Articles: "Labelling Collections: General Considerations", Cynthia Cripps; "Labelling – Materials and Techniques", Cynthia Cripps; "Numbering Museum Artefacts: Nail Polish VS. Acryloid (Paraloid) B-72", Angela Staple; "Paraloid B-72 Solutions", Cynthia Cripps; Book Review, Graham Penwell: *Library disaster planning and recovery handbook*. Camilla A. Alire (Ed.).
- 26 September 2002: Canterbury Disaster Salvage Team Annual Workshop: The Safe Display and Exhibition of Artefacts**
 Editor: Cynthia Cripps
 Articles: "General Principles", Cynthia Cripps; "Materials", Cynthia Cripps.
 Presentation Summaries: "Books", David Ashman, Tryptych; "Soft Objects", Joy Culy, Tryptych; "Metal Mounts for Display", Sebastian Denize, Canterbury Museum; "Perspex Mounts for Display", Cynthia Cripps, Canterbury Museum.
- 27+28 (Combined Issue)**
September 2003: Canterbury Disaster Salvage Team Annual Workshop- Integrated Pest Management, A Practical Approach
 Editor: Cynthia Cripps
 Presentation Summaries: "Chemical Treatments for the Eradication of Pest Infestations", Martin Carson, Kiwicare Corporation Limited; "Integrate Pest Management Policy (Procedures)", Dr. Vinod Daniel, The Australian Museum.