







Preservation

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- The primary goal of preservation is to prolong cultural property for as long as possible.
- **Minimize change**

Conservation

- One small part of preservation
- Actions that are taken on individual objects or groups of objects to stabilize their condition or return functionality
- Best undertaken when other preservation activities have been accomplished

Nature of materials and causes of deterioration

Materials

- Paper and ink
- Leather
- Parchment
- Photographs
- Textiles



Paper

- Paper is made from cellulose derived from plants
- Longer fibers create stronger paper
- Most paper produced before 1800 is rag paper with good initial strength



Brittle paper

- Paper from 1850 to 1950 generally have shorter fibers
- Over time, acids break chains of glucose molecules resulting in loss of paper strength
- Environmental factors can increase this deterioration process



Durability and Permanence

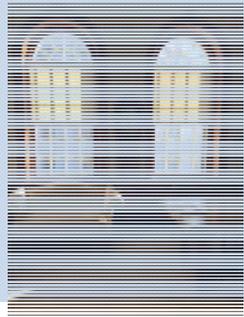
- Durability
 - the initial strength of materials
- Permanence
 - the stability of those materials over time

Durability and Permanence

- Internal Factors
 - weaknesses introduced during manufacture
- External Factors
 - heat, humidity, light, pollution, pests, poor choice of storage materials, improper handling

Environmental Factors

- Temperature
- Relative Humidity
- Light
- Air Pollutants
- Acid migration



Acidic ink



- Like paper, manuscript and printing ink can also be acidic
- The acids can transfer to adjacent materials
- This acid can damage paper, eventually eating away the paper over time

Storage environment and Protective Enclosures

Maintaining a Steady Temperature

- Extremes in temperature can cause permanent damage, especially high heat.
- Important to remember that seasonal climate changes affect your collections.
- Recommended stable temperatures around 60°-70° F but colder is better!



Relative Humidity



- The amount of moisture in the air compared to the total amount of moisture that could be held at that temperature.
- Stable humidity of between 30-50%
- Changes in humidity can lead to structural damage
- **Do not** store materials in places like basements, attics, and garages.

Mold

- High humidity can also lead to mold
- Can be a serious health hazard
- Best to have a professional clean mold damage
- A musty smell can be an indication of mold



Accidents Happen!

- Minimize chances by not eating or drinking around collections
- Don't store materials near water sources
- Don't panic—you can make things worse in the first few minutes with poor choices
- Can always freeze most materials to buy decision-making time
- FEMA has a fact sheet on salvaging damaged family treasure www.fema.gov



Disaster Response

- National Heritage Responders
 - 24/7 phone 202-661-8068
- NEDCC
 - 24/7 phone 855-245-8303

Disaster Recovery Service Providers

- Belfor 800-856-3333
- BMS Cat 877-730-1948
- Polygon 800-422-6379

Storage environment conditions



- General recommendations are the same as those for people
- Protect all collections from light whenever possible, especially UV light
- Reduce air pollutants
- Protect from insects and other pests

Storage Furniture

- Powder-coated steel is best
- Sufficient strength to support materials w/o bending or breaking
- Shelves should be:
 - deep enough to fully support materials
 - tall enough to comfortably place/remove materials
- Flat files are best for oversized materials (maps, plans, etc.)
- Beware of micro-climates



Protective enclosures



- Need to be good quality
- Commercially available folders and boxes for storage of flat paper
- Don't overcrowd material in boxes – this can lead to damage when removing items or returning materials back into the box
- A limit of ten items per folder, less if they are fragile

Storage Enclosure Terminology

- **Archival:** Really has no meaning at all.
- **Acid-free:** Material with a pH of 7 to 7.5 at the time of manufacture.
- **Lignin-free:** Produced from wood pulp that has had the lignin removed.
- **Buffered:** Material containing an alkaline substance to raise the pH slightly above 7. This alkaline reserve allows for a greater absorption of pollutants and acids before deterioration occurs.
- **Molecular Sieve (Microchamber):** Storage materials that provide protection against environmental pollutants and byproducts of deterioration.

Suppliers for Storage Materials

- Hollinger Metal Edge
www.hollingermetalede.com
- Light Impressions
www.lightimpressionsdirect.com
- Gaylord www.gaylord.com
- University Products
www.universityproducts.com
- Archival Methods
www.archivalmethods.com



Photos

- Many different substrates
- Various chemistry involved
- Exposure to light can be harmful
- Some processes are particularly vulnerable and require cold storage
- Nitrate film bases need special attention as they can be dangerous



Special needs for Photographs

- Paper can be a good choice
- Choose materials that have passed the Photograph Activity Test (PAT)
- Suitable plastics: polyester, polypropylene, or polyethylene
- **Do not use** polyvinylchloride (PVC)
- **Do not use** glassine enclosures



Boxes for bound materials

- Boxes should fit precisely to the book
- Phase boxes often constructed from one piece of material
- Commercial vendors but also can be made in-house
- Can label easily



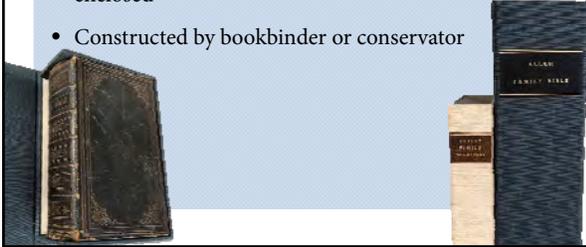
Measuring

- Need exact measurements
- Books are not always square but boxes are
- Devices for measuring with sliding ruler
- Can use any square material and a ruler



Boxes for bound materials

- Cloth-covered drop spine boxes are more expensive
- Can send a message about importance of material enclosed
- Constructed by bookbinder or conservator



Handling

Handling Collection Materials

Before you handle an object, prepare yourself:

- Wash your hands with soap, rinse well and dry completely
- Tuck in any baggy clothes or dangling items, including long hair
- Remove any sharp objects like jewelry, ID badges, watches, dangling earrings, etc.
- Make sure you can handle the weight or delicacy of the item

Gloves and Hand Washing

- Clean hands are often better than the use of gloves
 - Use **soap and water** – Alcohol based disinfectants only kill germs, they do not clean hands
 - Use gloves with photographs, A/V formats and metals to protect from trace oils in the skin



Handling Collection Materials

Before you handle an object, prepare your space:

- Be sure the area is clear and all tables and work surfaces are clean and dry
- Before you pick up any artifact—especially large ones—know where you are going to put it down
- Never place anything directly on the floor, objects on the floor are at greater risk
- Move items carefully, don't carry large oversize groups or tall stacks of material



Handling Collection Materials

Inspect your objects before touching

- How heavy or unwieldy is it? Will it require more than one person to lift or manipulate it? If so, make sure you have help!
- How does the paper look? Is it weak or brittle? Are there any tears or loose pieces that are in danger of breaking off?
- Is the object distorted? If it is bound, are the boards attached or the covering material fragile.
- All of these could indicate a potential condition issue that will require care when handling the object.

Cradles

- Use cradles for bound volumes that do not open well
- Check for reasonable opening—every book is different—**Don't force a book to open flat**
- Commercial foam cradles
- Can use clean towels or pillows to make a soft cradle



Scrapbooks



- Scrapbooks tend to open poorly
- A wide range of materials—often fragile or brittle
- Scraps may be poorly adhered and easily damaged as pages are turned

Scrapbooks

- Maintaining order is **very important**
- Folders can be used to turn pages, minimizing the possibility of damage
- Disbinding and foldering can make it much easier to reformat





Reformatting

- Distribute copies as widely as possible to make sure information is preserved
- Many ways to capture information, especially with increased quality in camera phones and low cost flatbed scanners
- Photocopiers can also be used to capture information, especially when a physical copy is desired



Reformatting



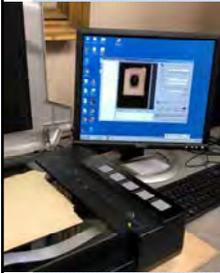
- An overhead camera or scanner is the best way to capture bound materials
- Much easier to handle compared to a scanner or photocopier where the volume is flipped over each time
- For especially fragile items a professional may be required

Reformatting digital materials

- Increased digital collections—especially photos
- Likely to grow faster in the future
- Reformatting physical items creates more digital items to preserve



Reformatting digital materials



- Identify the materials you want to keep long term
- Organize your materials
- Technological obsolescence so migrate to new formats
- Distribute copies widely
- Be wary of storage companies

Reformatting and Conservation



Reformatting and Conservation



Conservation

Conservation



- Why are you considering conservation?
- Will conservation treatment achieve the desired outcome?
- Treatments can't really be reversed



Conservation includes a number of physical and ethical considerations!

- You are changing the original artifact—need to document that process
- Items are at greatest risk so the conservator should be trained in that specialty
- Proper materials are essential
- Doesn't solve all preservation issues



A small, square photograph is mounted on a light-colored card. The photo shows a group of about a dozen people, including men, women, and children, sitting together in what appears to be a formal or group setting. The photo is slightly faded and has a white border.

Conservation



- Planning
- Prioritizing
- Execution
- Follow-up

The image shows a historical document on the left, which is a title page for a narrative by Mrs. Mary Rowlandson. To its right is a piece of aged, yellowed paper with two vertical strips of light-colored tape or repair material applied to it.

Conservation

- Is the conservation being performed for stabilization, aesthetics, or use?
- Treatments can't be reversed but they should not prevent future treatment options
- How will the treatment allow the object to better tell its story



Conservation





NEDCC
NORTHEAST DOCUMENT CONSERVATION CENTER

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