

# Care and Protection of Collections



**BUSINESS ARCHIVES SECTION  
SOCIETY OF AMERICAN ARCHIVISTS  
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# Topics



- Why Materials Deteriorate
- Sources of Damage
- Preventing Damage
  - Storage
  - Shelving
  - Supplies
- Seeking Conservation Treatment



# Why Materials Deteriorate



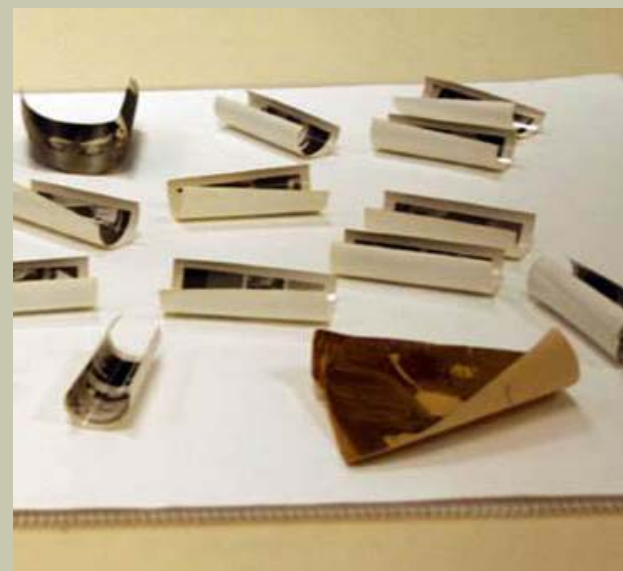
- All organic materials deteriorate over time
- Cannot not be stopped, but it can be slowed
- Poor storage conditions and rough handling speed up the process



# Sources of Damage



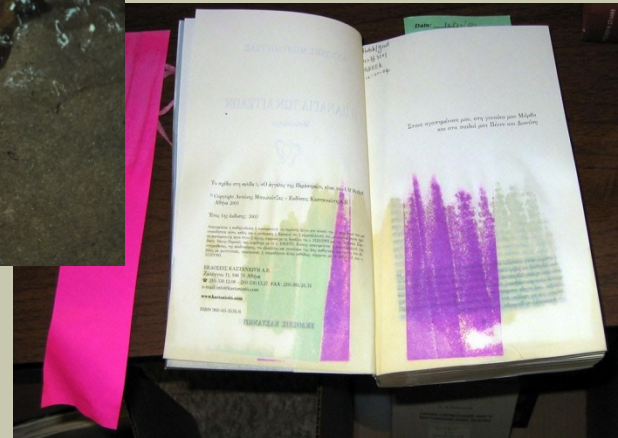
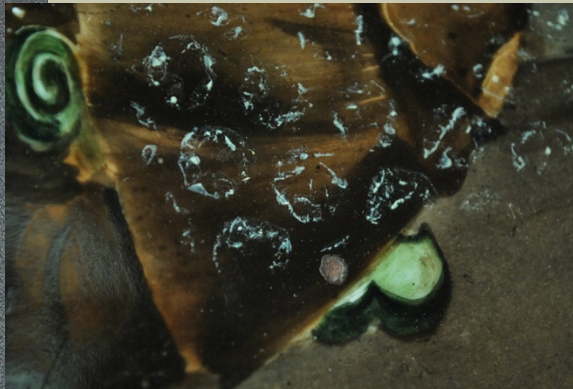
- Prolonged Exposure to Heat and Humidity
- Exposure to Light
- Acidic Adhesives and Tapes
- Wear from Use
- Disasters
- Poor Quality Storage Materials



# Gallery of Damage



- Poor Quality Storage Materials

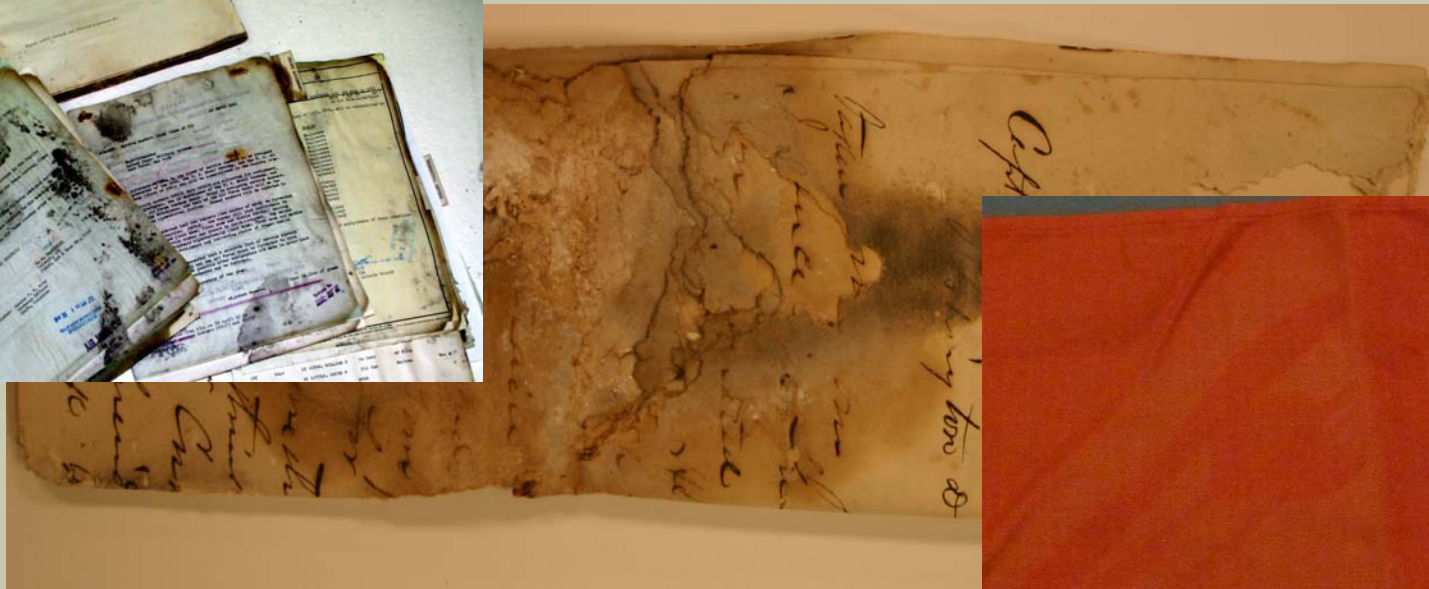




# Gallery of Damage



- Poor Environment: Mold, Insect Damage, Light Damage



# Gallery of Damage



- Acid Migration



# Preventing Damage



- Storage
- Shelving
- Supplies

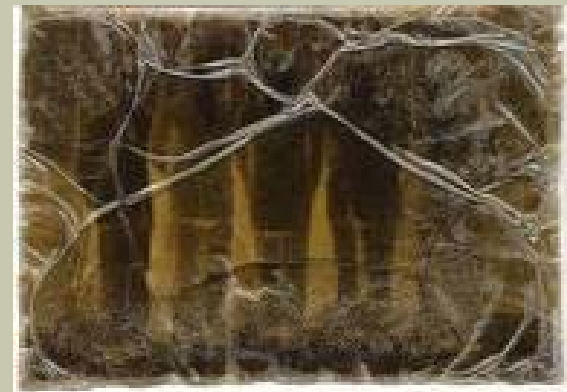




# Preventing Damage: Storage Environment



- Temperature:  $< 70^{\circ}$  F
- Humidity: 30 – 55%
- Mold Prevention
- Integrated Pest Management
- Air Pollutants
- Light
  - Avoid Sunlight
  - Avoid UV Light Sources



# New Paradigm



- Little Benefit from Steadiness of Temperature
- Avoid Extremes and the Length of Extremes
- Best Humidity Range 30% - 60%
- Flatten the Curves for Less Change in Moisture Content
- Less Change Equals Less Damage



# Why Monitor?



- Identify Problems with Conditions
- Know Seasonal Trends
- Identify Maintenance Needed
- Makes a Case for Repairs or Upgrades



# Preventing Damage: Storage Practices



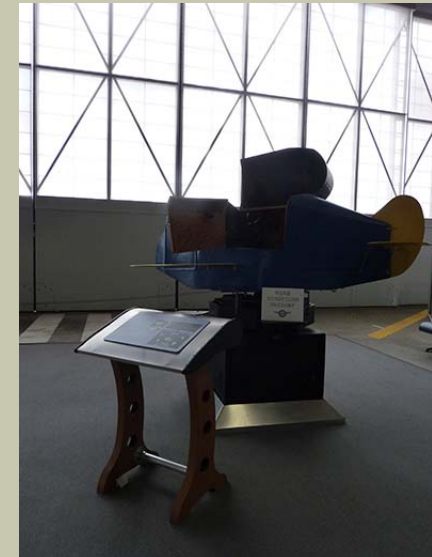
- Cool and dry environmental conditions
- Provide good air circulation
- Avoid basements or attics
- Avoid shelving along exterior walls or under skylights
- Avoid exposure to direct sunlight



# Light



- Light can cause fading, darkening, weakening, and chemical failure
- Light damage is cumulative and irreversible
- Guidelines
  - Storage: 10-50 lux/1-5 footcandles
  - Exhibit: 50-100 lux/5-10 fc
  - Reading/Work areas: 300-600 lux/30-60 fc



Total Exposure = *Intensity x Time*





# Low Cost Environmental Practices



- Turn off lights and close blinds
- Weather strip doors and seal windows
- Monitor conditions
- Install fans
- Practice integrated pest management
- Practice good housekeeping
- Keep HVAC functioning and maintained
- Have a engineer evaluate building systems



# Preventing Damage: Shelving Practices

- Steel shelving preferred
- Seal wood shelving or lined with protective barrier like polyester or Marveseal
- Moving drawers and shelves need non-slip separators and liners



# Preventing Damage: Shelving Practices



- Use appropriately sized boxes
- Items should be supported on sturdy shelving
- Have some consistency in sizes
- Oversize items may require special shelving



# Preventing Damage: Purchasing Supplies

- Order from quality suppliers
- No additives, adhesives, dyes, or bleaches
- Test purchases with a pH pen (paper products only)
- Purchase in bulk for savings
- Beware of “archival quality”





# Preventing Damage: Purchasing Supplies

- **Plastics:**
  - Polyester, Polypropylene, or Polyethylene
- **Natural fibers:**
  - Cotton or Linen
    - ✦ Naturally lignin free
  - Wood fibers
    - ✦ Lignin free
    - ✦ Acid free
    - ✦ Alkaline buffered





# Plastics!



Polyethylene  
Foam



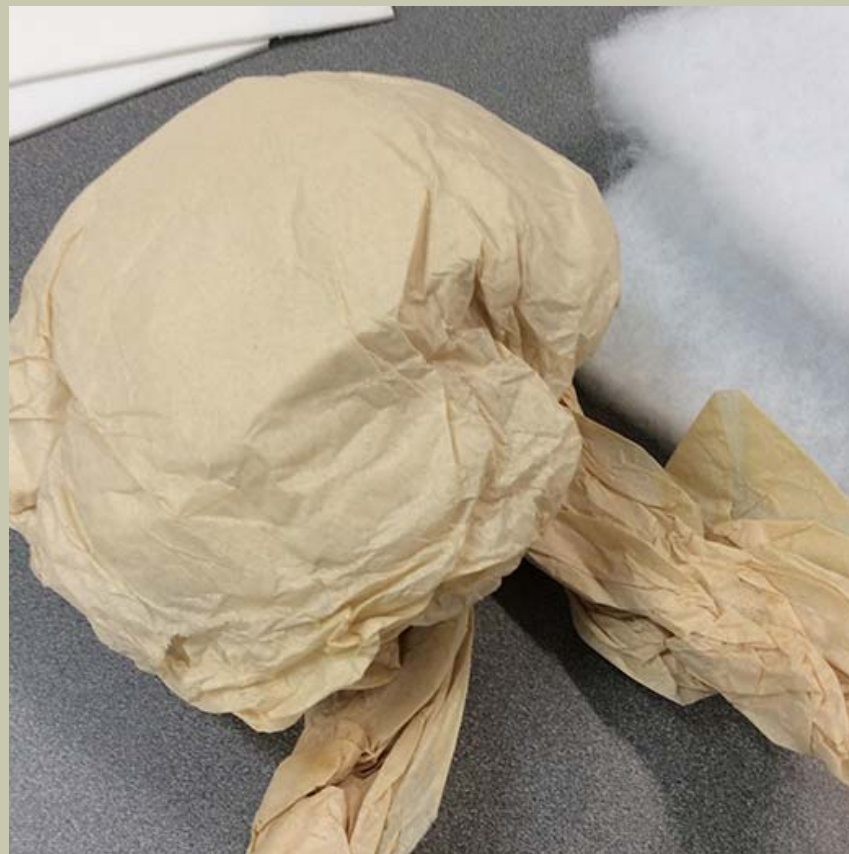
Polypropylene



Polyester



# Quality Matters



# Framing and Display



- UV filtering glazing
- Quality products in display cases
- Item should not come in contact with glazing or off-gassing materials
- All framing and mounting should be reversible and not damaging to the object: no tape, permanent adhesives, or dry mounting
- Choose a display area that receives limited light, or display a reproduction
- Chose lighting options will low UV and dimmers
- Items displayed out in the open should be cleaned periodically



# Storage: Textiles



- Store in an environment where you are comfortable
- Box or roll and cover textiles to prevent damage from dust and light.
- Inspect regularly for insects
- If folding, pad the folds with tissue
- Display dyed textiles away from direct light
- Hang historic clothing on well-padded hangers and cover with plain cotton





# Storage: Textiles

- Padded hangers



- Or...





# Storage: Textiles



- Rolled items
- Inert core tubes or tubes with a barrier
- Roll item carefully
- Cover with muslin and cotton string or typing tape
- Stockinette/tubular bandage
- Create detailed label



# Storage: Metal Objects



- Practice proper handling; use gloves at all times
- Keep free of dust, debris and oily residues.
- Display on sturdy level surfaces
- Repeated polishing or dipping in cleaning solutions will remove plating, surface decoration, and maker's marks
- Use mild and non-abrasive cleaning techniques
- Items that oxidize (rust or tarnish) can be stored in silver cloth to reduce the need to polish
- Avoid excessive humidity
  - Under 55% for most collections
  - Under 40% for archeological artifact



# Storage: Glass and Ceramic Objects



- Practice proper handling:
  - Do not use handles
  - One piece at a time using two hands
  - Get assistance with heavy items
- Do not leave liquids inside
- Porous ceramics (earthenware) should not be immersed in water
- Display on sturdy level surfaces
- Be wary of old repairs and restorations
- Keep items clean and free of debris



# Storage: Glass and Ceramic Objects



- Small collections or small items



# Storage: Plastics



## Signs of Deterioration

- Smells
  - Yellowing
  - Crazing
  - Cracking
  - Crumbling
  - Embrittlement
- Shrinking
  - Warping
  - Weeping
  - Blistering
  - Blooming
  - Sticky surface





# Storage: Plastic



## Problem plastics

- Cellulose nitrate
  - Cellulose acetate
  - Polyurethane
  - Polyvinyl chloride
  - Rubber
- Focus on good environment
  - Isolate degrading objects from other collections
  - Handle with care
  - [www.materials.ac.uk/events/doc/plastics-rogeron.ppt](http://www.materials.ac.uk/events/doc/plastics-rogeron.ppt)



# Storage: Oversized



- Use large sturdy shelving
- Ensure that the item is stable
- Cover wood shelving with barrier
  - Marvelseal or polyester film (Melinex)
- Protect item from dust with non-reactive cover
  - Unbleached muslin
  - Tyvek



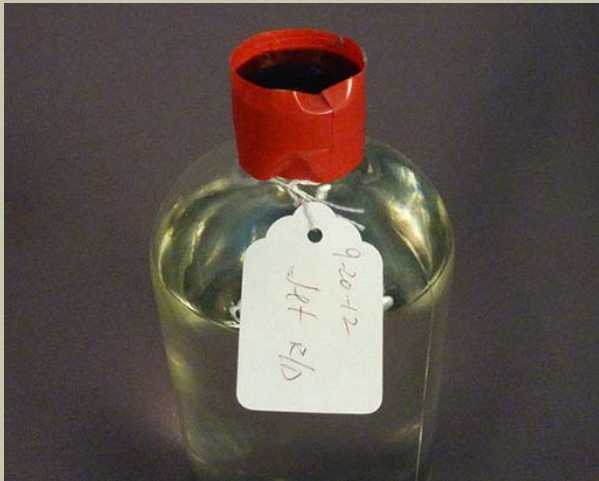
# Storage: Consumer Products



- Open in an inconspicuous place
- Remove perishable contents
- Clean thoroughly



# Exceptions?





# Storage: Housekeeping



- Schedule cleaning of floors and flat surfaces
  - Vacuum
  - Damp mop on floors only if necessary
- Clean artifacts with a soft brush and vacuum cleaner
- Vacuum specs
  - High-Efficiency Particulate Arrestance (HEPA) filter
  - Variable speed motor





# Definitions



- Conservation – physical treatment or stabilization of cultural heritage materials that have been damaged or deteriorated
- Restoration – treatment with the goal of restoring an item to its original appearance
- Conservator – Professionals who perform the treatment of cultural property
  - Graduate school training
  - Apprenticeship training with an experienced conservator



# Need a Conservator?



- Don't DIY
- Poor quality repairs fail and cause more damage
- Tape is evil
- Stabilize rather than “restore”



# Finding a Conservator



- Ask area museums, archives or libraries for referrals
- American Institute for Conservation referral service

<http://www.conservation-us.org>

- Ask for references
- A conservator should provide
  - Proposed treatment estimate
  - Examination and condition assessment
  - Before and after photography
  - Insurance coverage



# Online Resources



**American Institute for Conservation: Caring for your Treasures**

<http://www.conservation-us.org/about-conservation/caring-for-your-treasures>

**American Library Association: Saving Your Stuff**

<http://www.ala.org/alcts/preservationweek/howto>

**Library of Congress: Collections Care**

<http://www.loc.gov/preservation/care/>

**Minnesota Historical Society**

<http://www.mnhs.org/preserve/conservation/connectingmn/CollectionCare.php>

<http://www.mnhs.org/preserve/conservation/podcasts.php>

**National Park Service: Conserve O Grams**

[https://www.nps.gov/museum/publications/conservoogram/cons\\_toc.html](https://www.nps.gov/museum/publications/conservoogram/cons_toc.html)

**Nebraska State Historical Society**

<http://netnebraska.org/basic-page/television/saving-your-treasures>



# Supplies



- Hollinger Metal Edge
- Masterpak
- Talas
- Testfabrics, Inc.
- University Products





# Contact Information



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