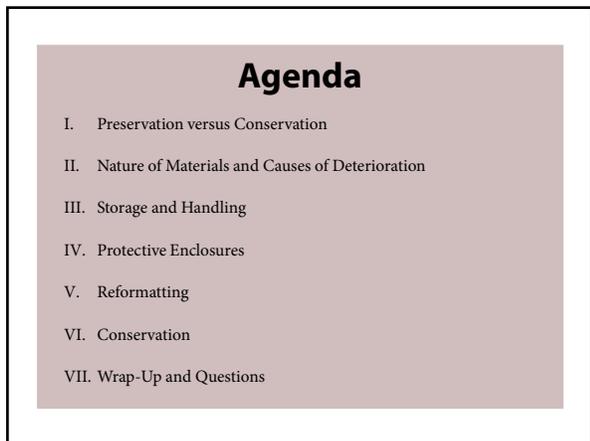


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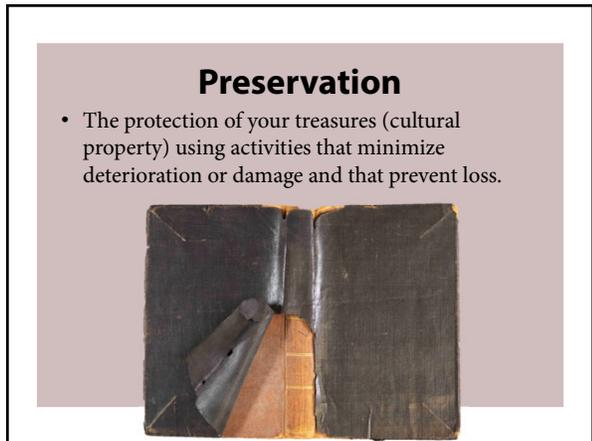
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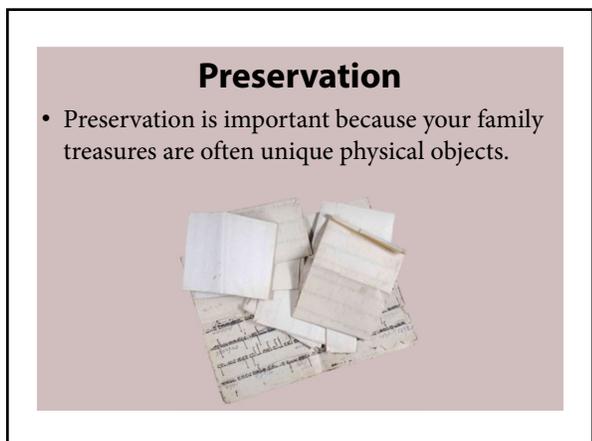
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6

Preservation

- Preventive preservation focuses on preventing deterioration of your collections as a whole.



7

Preservation

- Greatest impact for money and time spent



8

Conservation

- One small part of preservation



9

Conservation

- Actions that are taken on individual objects or groups of objects to stabilize their condition or return functionality



10

Conservation

- Best undertaken when other preservation activities have been accomplished



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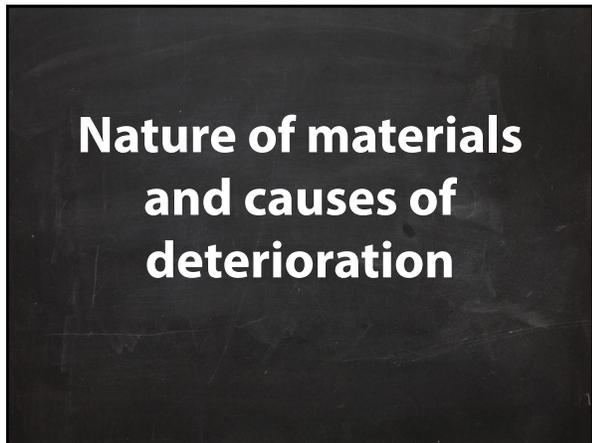
Conservation

- Ideally, should be part of a strategy or plan

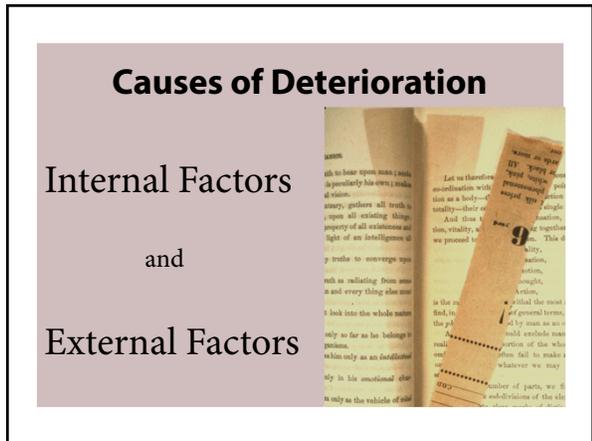
Rare books flagged for conservation planning at American Ancestors



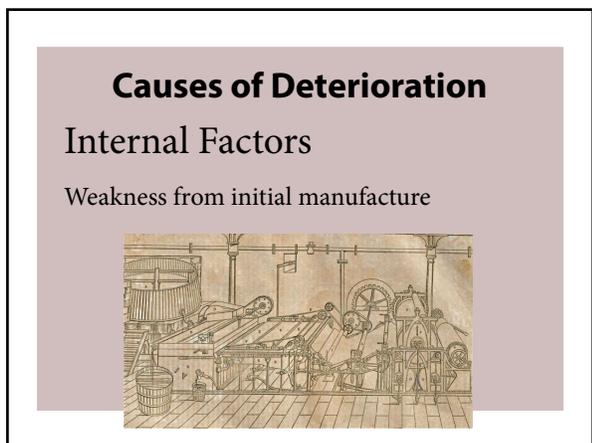
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15

Causes of Deterioration

External Factors

- heat
- humidity
- light
- Pests
- poor storage materials
- improper handling



16

Materials

- Paper
- Ink
- Parchment
- Photographs
- Books



17

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



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Durability and Permanence

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

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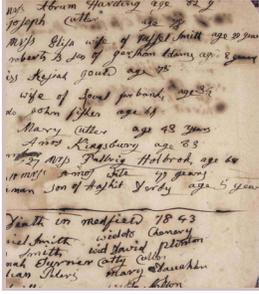
Brittle Paper

- 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



20

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

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Photos

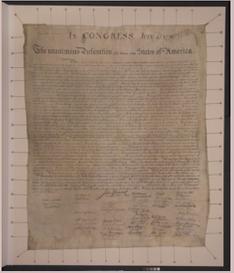
- Many different substrates
- Variety of chemistry
- Exposure to light can be harmful
- Some photographic processes are particularly vulnerable to deterioration
- Nitrate film needs special attention



22

Parchment

- Animal Skin
- Different process from leather
- Temperature and humidity sensitive
- Prone to planar distortions



23

Books



- Variety of materials
- Different structures
- Need to be opened to be used – more handling than for flat paper or photographs
- Leather is acidic

24

Storage and Handling

25

Environment Matters

The single biggest thing you can do to protect paper and extend the life of your collections is to control the environment!



26

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



27

Maintaining a Steady Temperature

- Extremes in temperature can cause permanent damage, especially high heat.
- Important to remember that seasonal climate changes affect your collections.
- Important to be stable!
- Pay special attention to where materials are stored

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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.

29

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



30

Air Quality

- Reduce air pollutants
- Some air purifiers can emit gases that are harmful to materials
- Pests are attracted by food and like dusty areas so keep collection spaces clean



31

Recommended conditions

- General recommendations are the same as those for people
- Temperatures around 70 and humidity between 30% to 50%
- Temperature and Humidity should be stable
- Protect all collections from light whenever possible, especially UV light

32

Accidents Happen!



33

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 family treasure



<https://www.fema.gov/disaster/recover/save-family-treasures>

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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 866-7387-3521
- Polygon 800-422-6379

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Disasters and Handling



36



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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

38

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



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Handling Collection Materials

- Be sure the area is clear, and all tables and work surfaces are clean and dry
- Before you pick up any artifact check it for weak paper or other damage
- Limit use of objects as possible
- Use extreme care when trying to unfold letters

Don't force materials open

40

Handling Bound Collection Materials

- 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.

41

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



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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

44

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.

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Suppliers for Storage Materials

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

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Suppliers for Storage Materials

PORTFOLIOS & CASES ARCHIVAL BOXES BINDERS & ALBUMS ENCLOSURES & SLEEVES KITS & ACCESSORIES CUSTOM OPTIONS

LATEST BLOG POST *Archival 3-Ring Binder, Papers and Inserts*

PORTFOLIOS & CASES ARCHIVAL BOXES BINDERS & ALBUMS
KITS & ACCESSORIES CUSTOM OPTIONS FRAMES

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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

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Boxes for bound materials

- Boxes should fit precisely to the book
- Phase boxes often constructed from one piece of material
- Cloth-covered drop spine boxes are more expensive
- Can send a message about importance of material enclosed
- Constructed by bookbinder or conservator

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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



50

Custom-fitted commercial boxes

- **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.

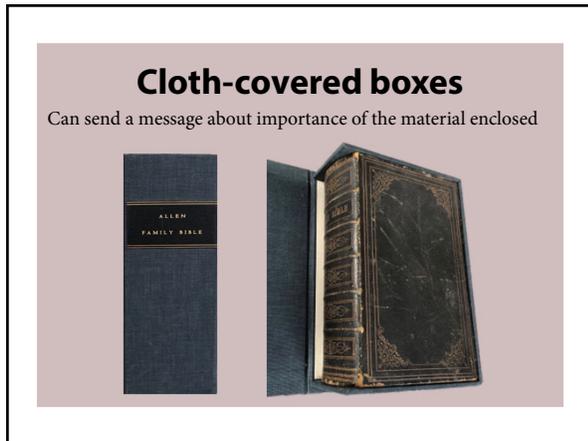
Vendors

- <https://www.talasonline.com/archival-storage/custom-enclosures>
- <http://www.archivalboxes.com/>

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53



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Reformatting

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

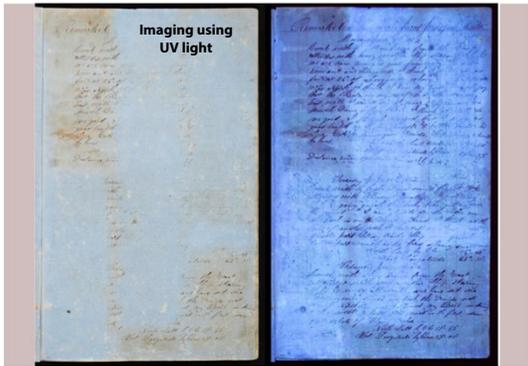


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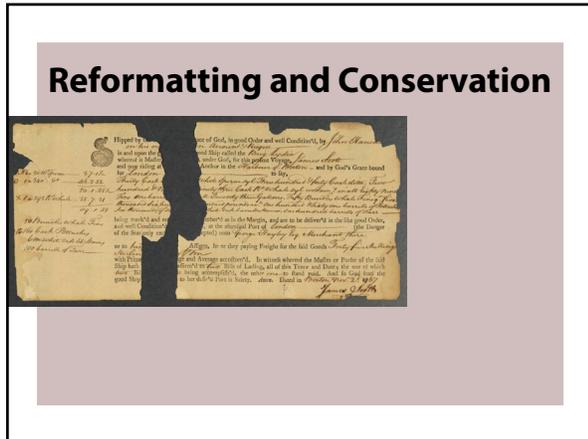


- Outside vendors can also provide imaging services
- Professionals may understand how to handle materials with physical challenges
- Outside vendors can often work with larger materials
- Can use other techniques, including imaging under UV

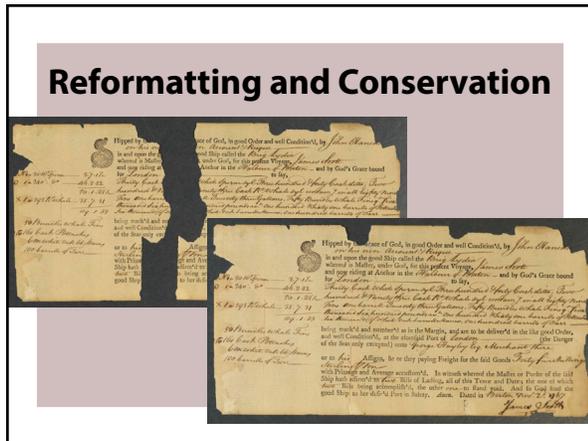
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Conservation



- Why are you considering conservation?
- Why is the object important
- Will conservation treatment achieve the desired outcome?

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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
- Treatments are not always reversible

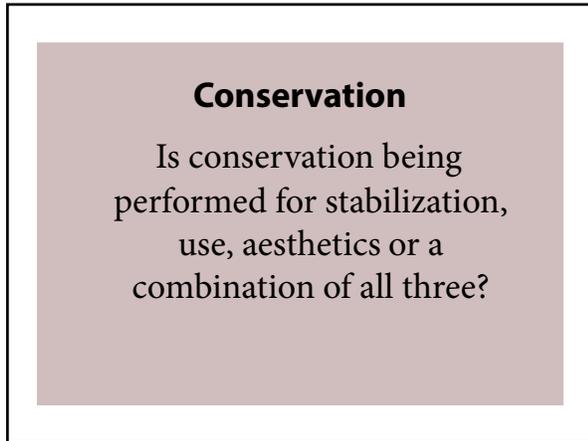
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Conservation

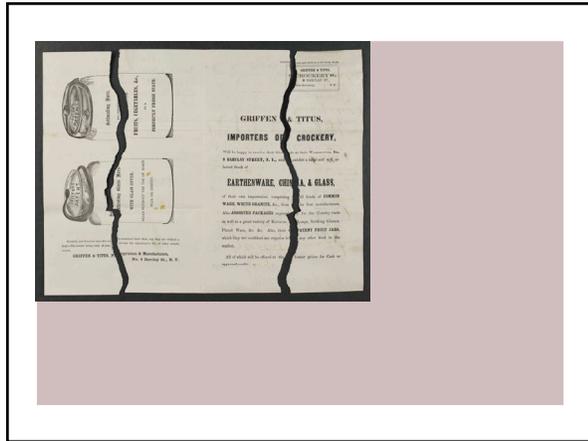


- Stability
- Functionality
- Aesthetics

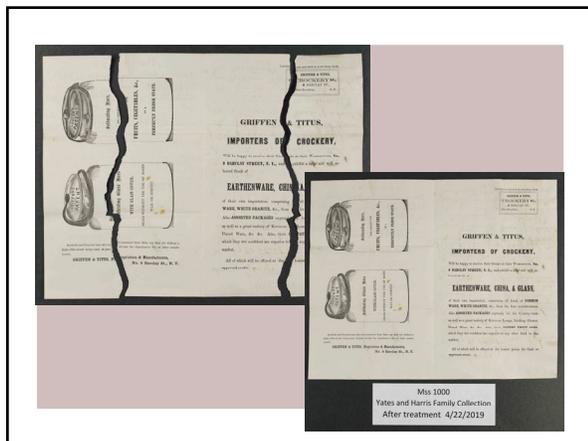
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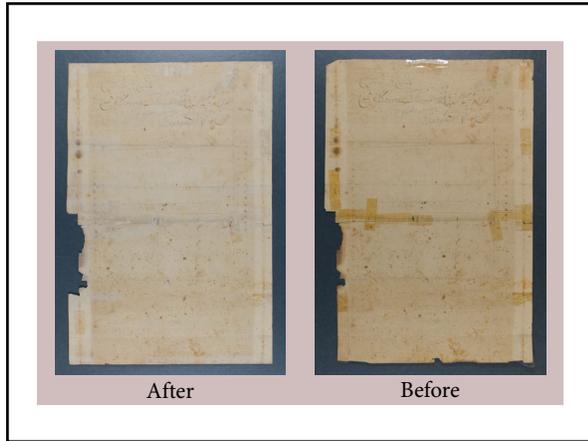
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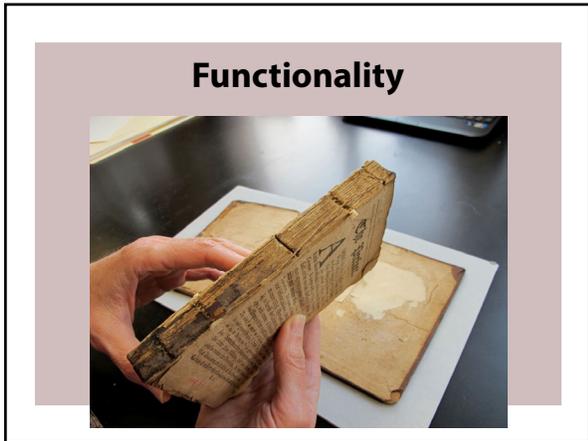
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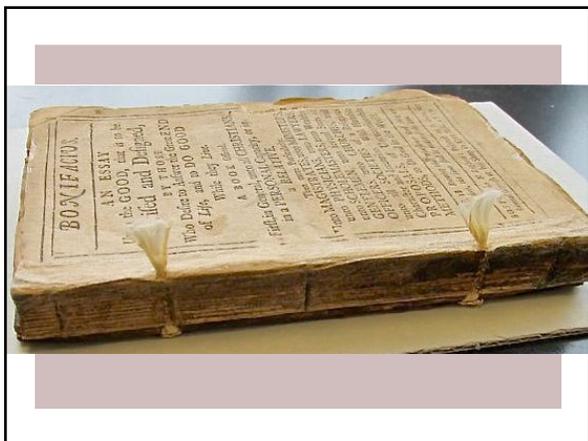
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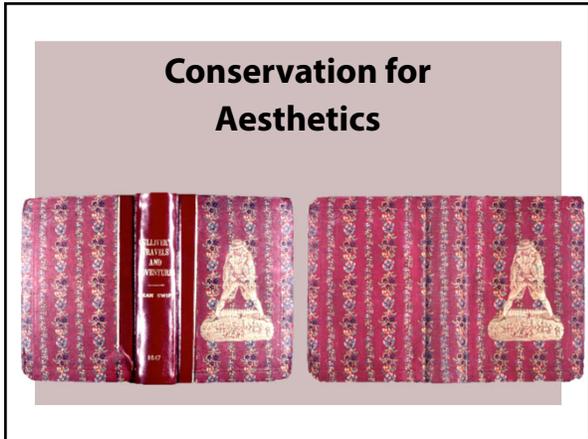
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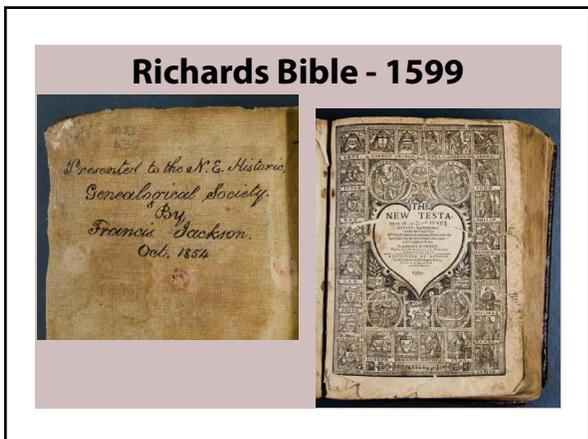
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Conservation of Bibles



- Family record pages are most important
- Iron-gall ink damage
- Can be removed and treated
- Important to create surrogates

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Criteria for conserving the Bible versus just the Bible Records

- Published before 1820
- Unique volumes post 1820
- Contains special elements such as gold stamped name on cover, etc.

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Special Properties of Parchment

- Animal skin
- Originally dried under tension
- Wants to return to original shape
- Tends to shrink over time
- Very susceptible to changes in humidity
- Challenge for producers and conservators



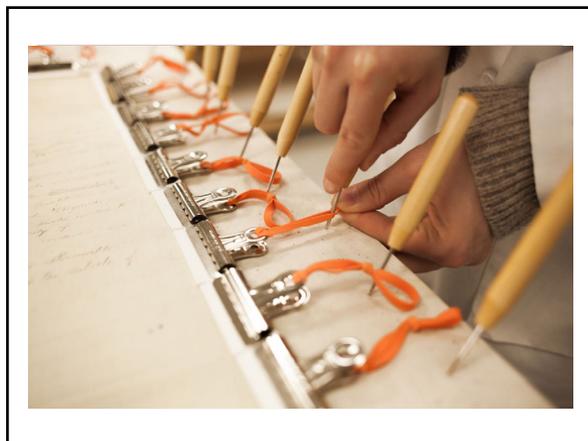
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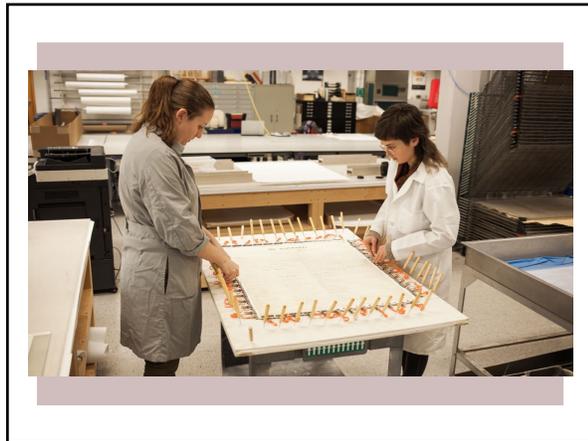
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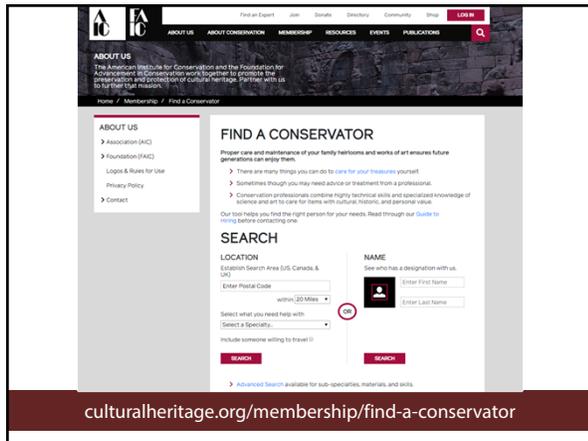
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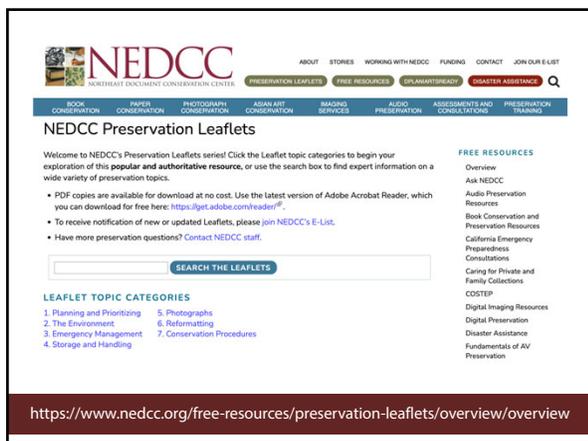
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THE ENVIRONMENT
2.4 Protection from Light Damage

[← Back To List](#)

INTRODUCTION
When we think of light damage, we think of fading, but fading is only the most recognizable form of damage.
Light is a very common cause of damage to collections. Many materials are particularly sensitive to light: paper, cloth, leather, photographs, and media (inks, colorants, dyes, and many other materials used to create objects and art). Aside from fading, there may be damage to the physical and chemical structure of materials. Light and ultraviolet radiation (UV) provides energy to fuel the chemical reactions that lead to deterioration and while UV is blamed for most of this damage, visible light is also problematic.
Intensity and long exposure times can lead to fading or changing colors in dyes and colorants. Ultraviolet radiation will lead to weakening, bleaching, and yellowing of paper and other organic materials. All of these changes can diminish readability, affect the aesthetic appreciation of artwork, and impact access to the information contained therein. Even if you take a faded photograph down and store it in the dark, it will not return to its original appearance and will continue to fade when taken out again.
Because this damage is cumulative and irreversible, it is important to understand how to protect materials in the first place.

THE NATURE OF LIGHT
Light is the band of radiation that allows us to perceive color and is composed of many different wavelengths that correspond to specific colors. Bookending the visible light spectrum is ultraviolet (UV) and infrared (IR) radiation. Neither UV nor IR is visible, but they are damaging: UV radiation will yellow and weaken materials and IR will cause the surface of objects to heat up. The visible spectrum and UV radiation are of greatest importance for preservation.



FREE RESOURCES
Overview
Ask NEDCC
► Preservation Leaflets
Overview
1. Planning and Prioritizing
► 2. The Environment
3. Emergency Management
4. Storage and Handling
5. Photographs
6. Reformatting
7. Conservation Procedures
Disaster Assistance
Emergency Preparedness
dPlan
Funding Opportunities
Preservation 101
Fundamentals of AV Preservation
Preservation Education Curriculum
Caring for Private and Family Collections

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Review

- The goal of preservation is to limit change in our collections
- Preventative measures are the most important and impact the entire collection
- Over time materials will break down
- To slow this deterioration, we can monitor the environment, storage areas and educate users on safe handling procedures
- Boxing, boxing, boxing
- Reformat materials to make sure the information is preserved even if something happens to the physical object
- When in doubt, ask a professional

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Next Steps

- Move any family papers out of basements, attics or garages
- Organize your materials checking for preservation issues
- Place your collections in proper storage enclosures
- Pay special attention to fragile objects
- Find out the current storage environment conditions – make adjustments if necessary

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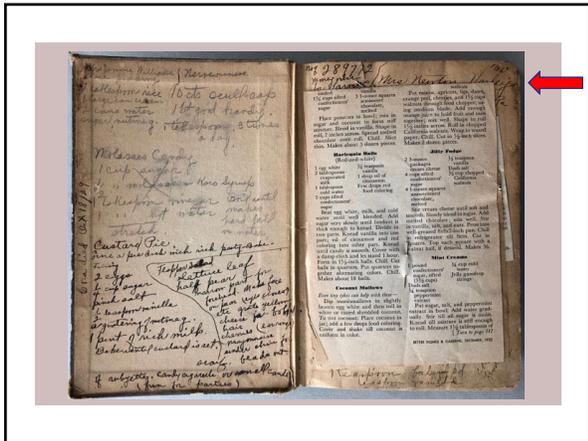
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Conservation

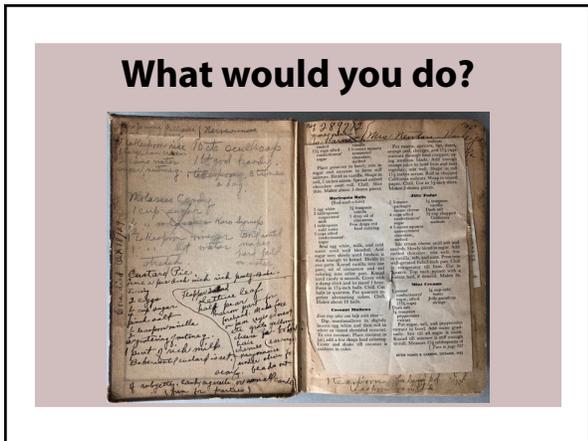


- Why are you considering conservation?
- Why is the object important
- Will conservation treatment achieve the desired outcome?

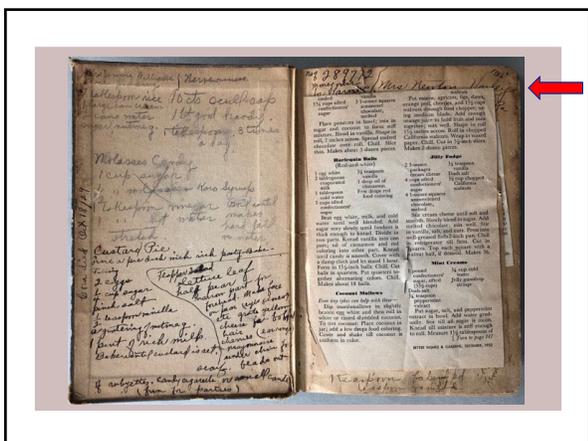
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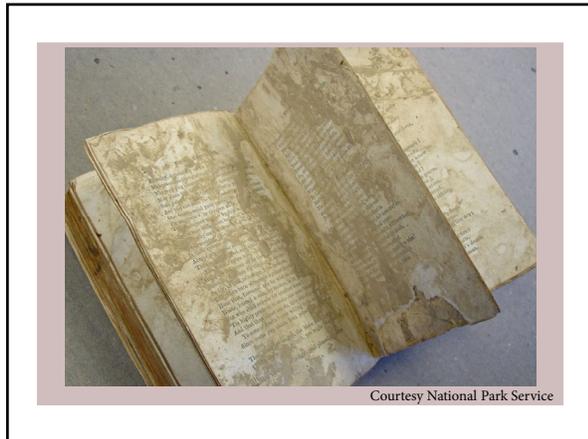
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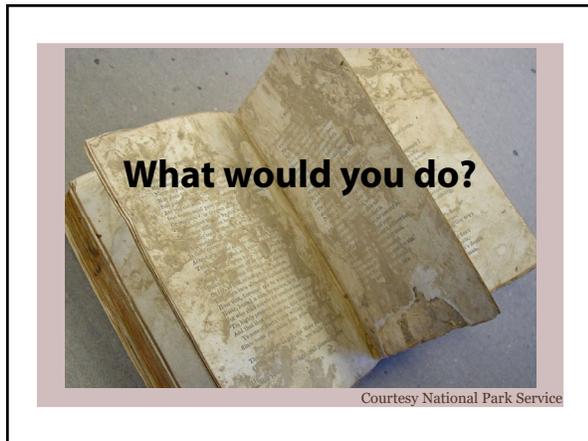
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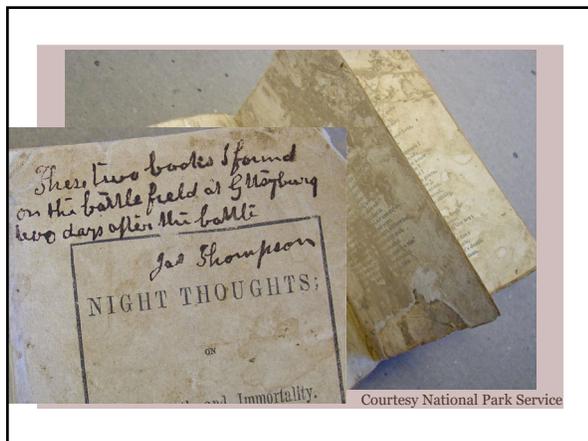
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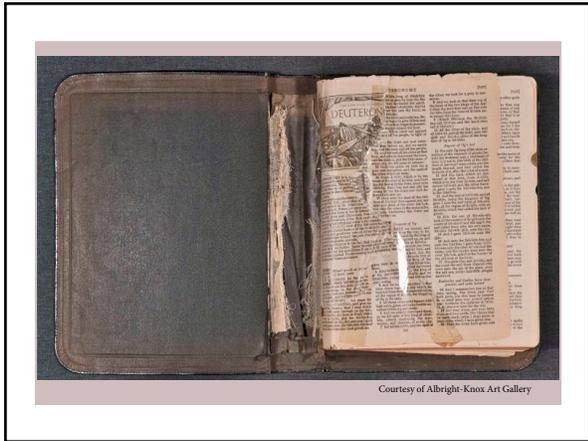


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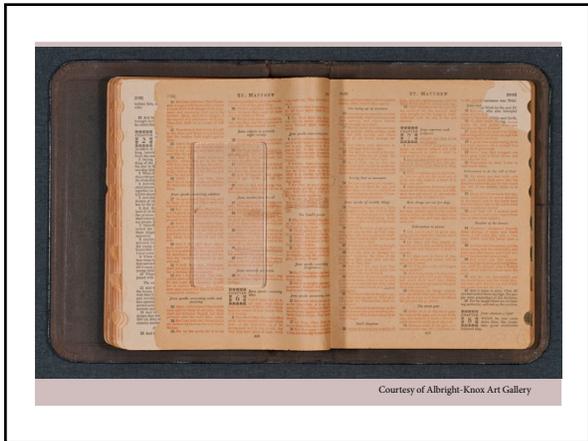
“There is, of course, no such thing as a single “ideal” treatment because there is no one ideal post-treatment state for any given object.”

Barbara Applebaum
Author of *Conservation Treatment Methodology*

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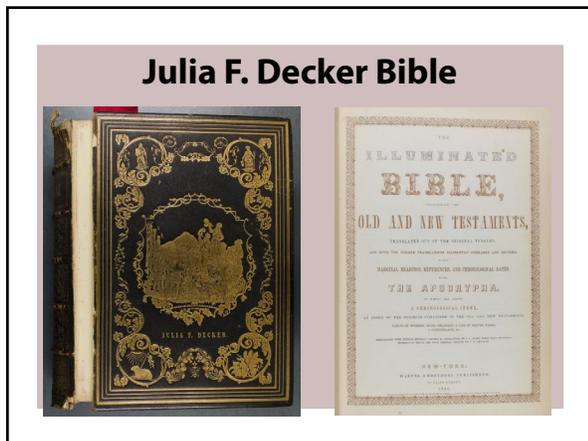
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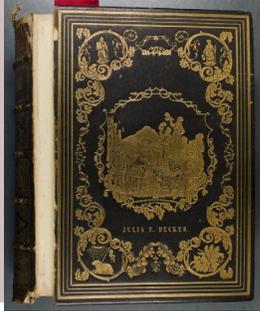


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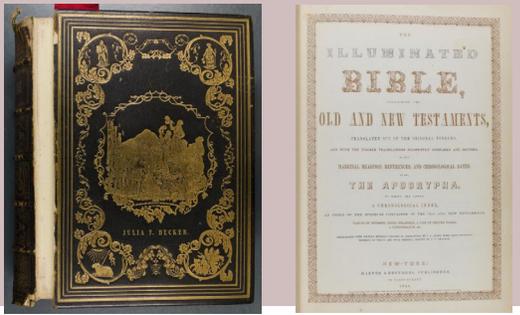
Julia F. Decker Bible



- Has family record pages
- Very large Bible
- Ornate binding
- What would you do?

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Harpers Illustrated Bible

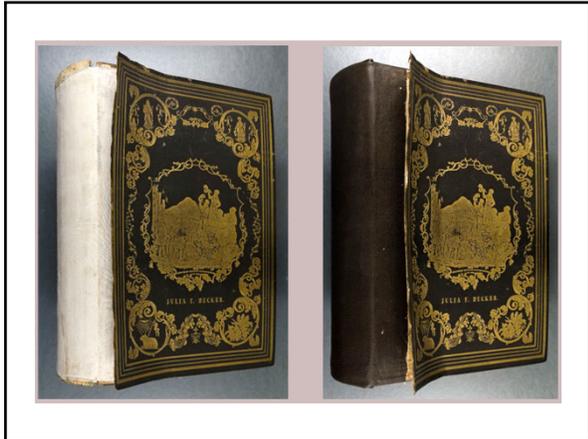


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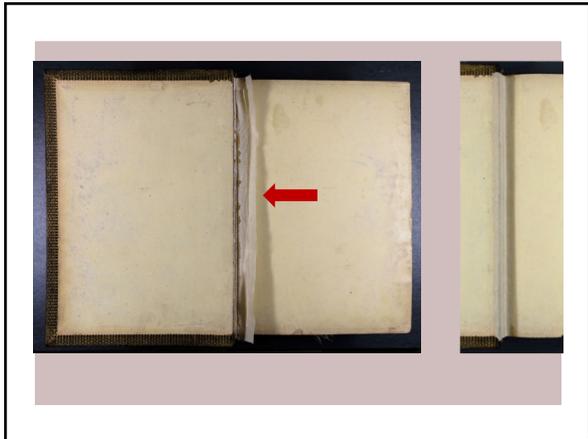


Rebacking with new leather

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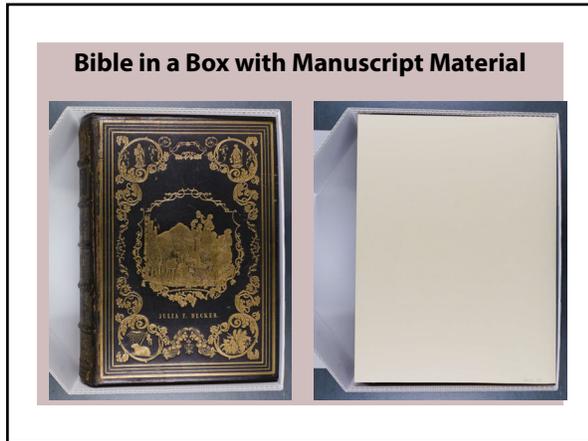
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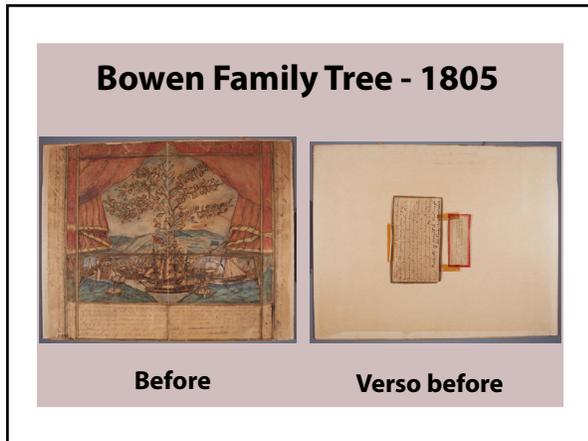
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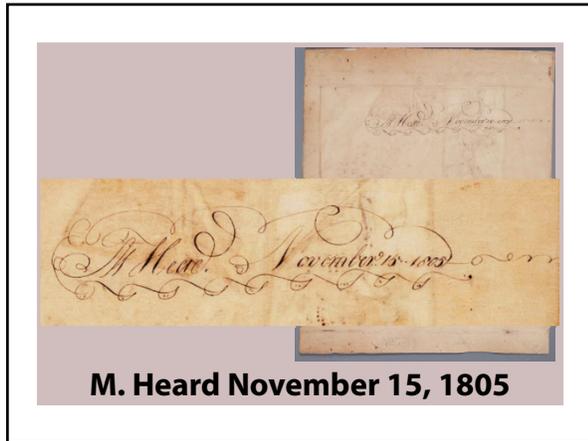
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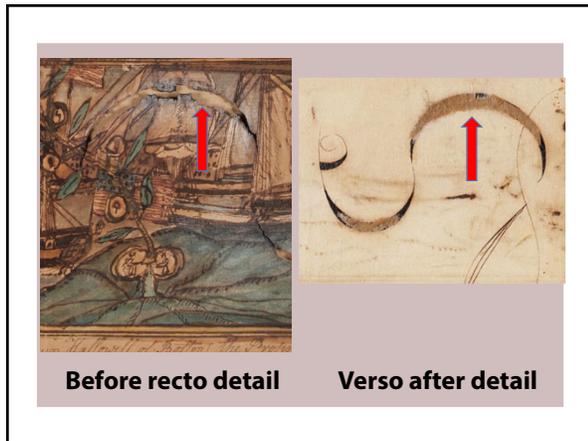
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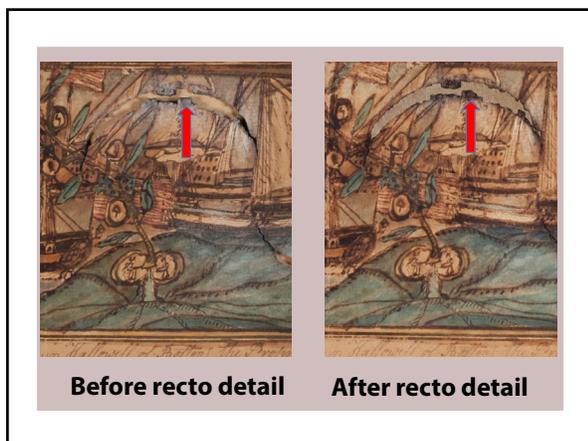
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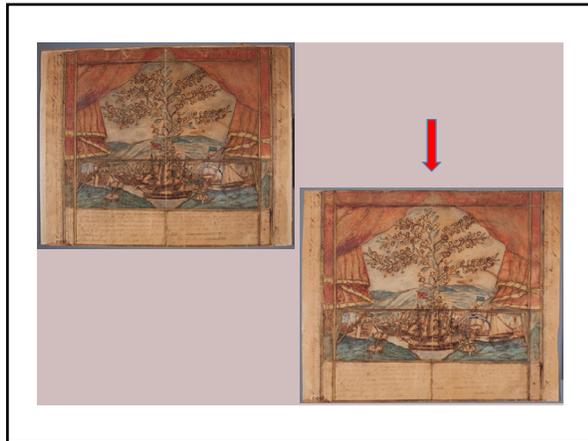
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Bowen Catalog Record

Author [Bowen, Ashley, 1728-1813.](#)
 Title [Bowen family tree, 1805 November 15.](#)
 Production [\[Marblehead, Mass.\], 1805.](#)
 Rating [☆ ☆ ☆ ☆ ☆](#)
[Permanent link to this record](#)

[Connect to](#)
[Online version in American Ancestors Digital Library & Archives](#)

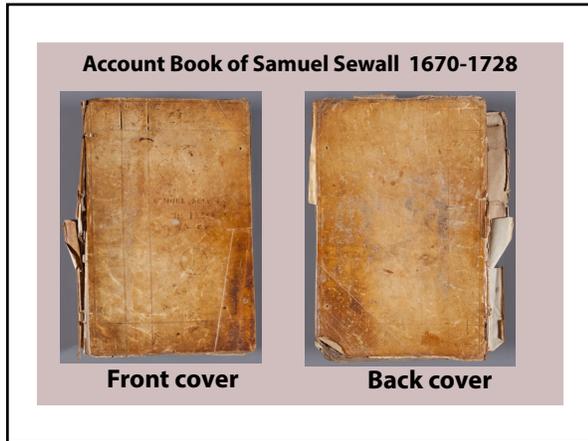
| Location | Call No. | Status |
|------------------|--------------------------|-----------|
| Manuscripts Flat | Mss 1236 | AVAILABLE |

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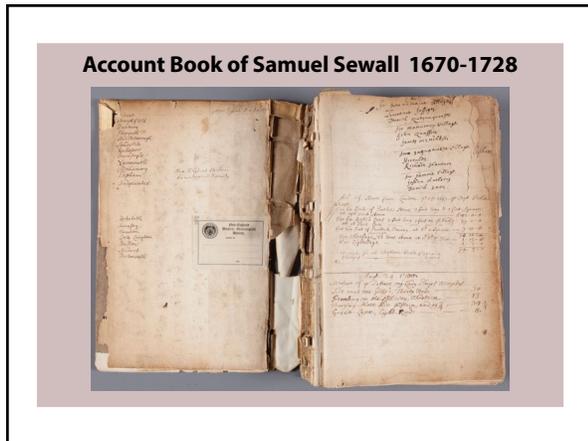
Bowen Catalog Record

Cite As: [Bowen family tree, Mss 1236, R. Stanton Avery Special Collections, New England Historic Genealogical Society.](#)
Note [Also available online in American Ancestors Digital Library & Archives.](#)
 Conservation and digitization of this item funded by Nord Brue, Steve Case, Tom Hagen, Margaret Hendrick, Nancy S. Malsby, Ailsie McEnteggart, Jonathan W. Montgomery, Toby Webb, David and Diana Smith, Judy Avery, Gerry Halpin, Bob Hendrickson, Harold Leach, Jo Anne Makeley, Steve McCarthy, Olivia Parker, Patricia Reed, Steve Solomon, Ed Sullivan, and Stephanie Martineau.
 Ashley Bowen, son of Nathan and Sarah (Ashley) Bowen, was born 8 January 1728 in Marblehead, Mass.; and he died 2 February 1813 in Marblehead. A sailor from age 13 to 35, Bowen is credited as the first American sailor to write an autobiography. Bowen was married first in 1758 to Dorothy Chadwick (1738-1771); he was married second in 1771 to Mary Shaw (1750-1781); and he was married third in 1782 to Hannah Galusha (1752-1825).
Subject [Innis, Sarah Ashley Bowen, 1776-1862.](#)
[Bowen family.](#)
[Registers of births, etc. -- Massachusetts -- Marblehead.](#)

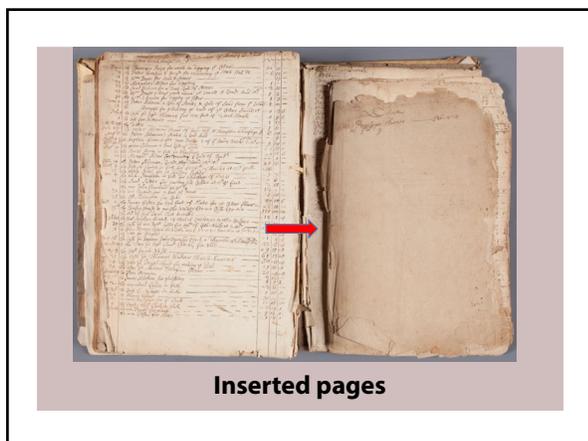
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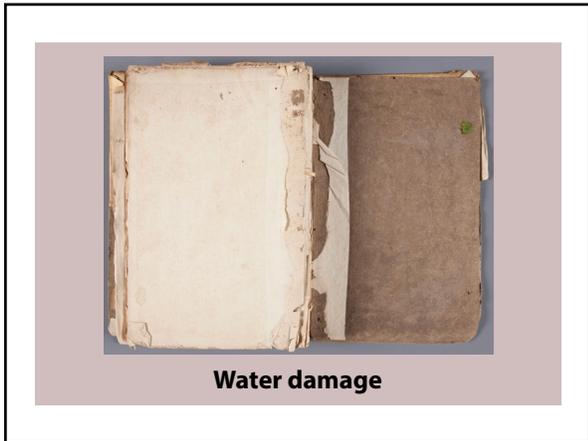
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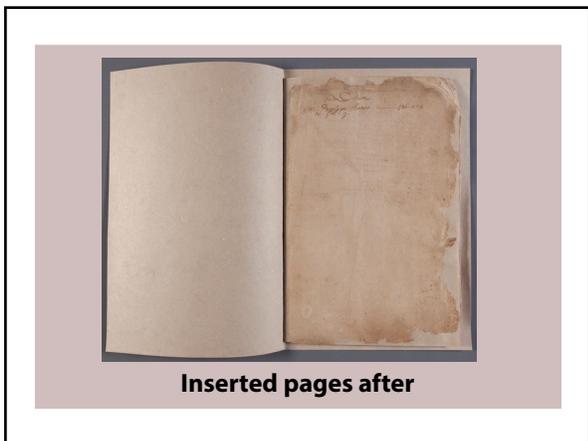
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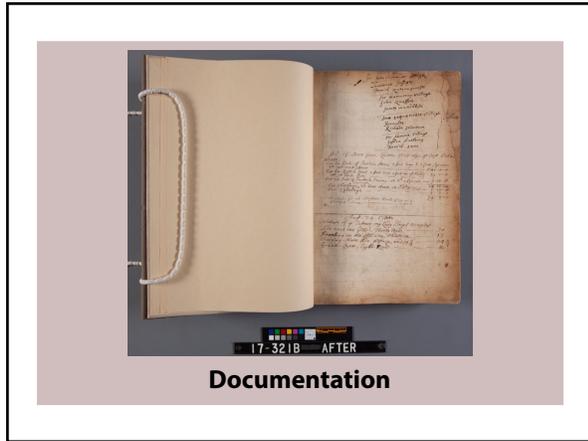
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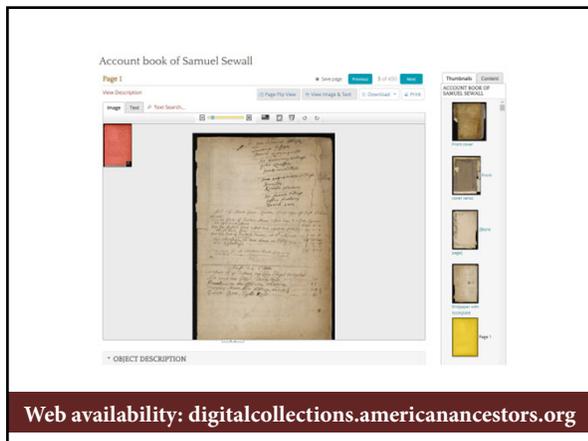
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