THE THEOLOGICAL LIBRARIAN'S HANDBOOK

Preservation of Collections in Theological Libraries

VOLUME 4

EDITOR: DOUGLAS L. GRAGG

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Collectors & Connectors
in Religion & Theology

Preservation of Collections in Theological Libraries

The Theological Librarian's Handbook – Volume 4

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Introduction

DOUGLAS L. GRAGG

One of the most important responsibilities of librarians and archivists is to ensure that the collections they and their predecessors have assembled on behalf of researchers are preserved for ongoing use. This volume of the *Theological Librarian's Handbook* presents essential information and recommends additional resources for fulfilling that responsibility effectively. It is not conceived as a comprehensive textbook but as a kind of "field guide" for busy librarians. A strong emphasis throughout is on the importance of collaboration with partners who have special expertise in this area.

The chapters were prepared by an international group of experienced practitioners for the benefit of theological librarians around the world, especially those who have had only limited access to information or training in this area. The focus is on the preservation of physical collections since the preservation of digital assets requires

a rather different set of skills and tactics and is worthy of a volume of its own. *Digitization* of physical resources that are rare or have become fragile receives attention in the volume as a tactic for preserving originals while providing sustainable access to surrogate versions.

The first four chapters introduce the most important *principles and practices* for protecting physical collections against deterioration and destruction. Chapters 5-8 then offer four *case studies* describing actual instances of real or imminent danger to collections in theological libraries or archives and how staff responded. A final chapter identifies *additional resources* for further study. The emphasis throughout the book is on references and resources that are available to everyone online, though a few important resources cited are available only in print.

Principles and Practices

In Chapter 1, **Erin Mollenhauer** provides a clear and concise overview of the entire topic, covering the most common types of physical material held in libraries and archival collections and how to maximize their longevity. In Chapter 2, **Amanda Maloney and Elena Bulat** take a more detailed look at photograph collections in particular because even many seasoned librarians need more knowledge about the features and proper care of historical photographs. In Chapter 3, **Ezra Choe and Beth Farwell** build on the first two chapters with more information about the equipment and collaborations involved in climate control, especially in managing temperature and relative humidity in spaces where collections are stored. In Chapter 4, **Karl Stutzman** wraps up this section by addressing how the preservation of collections can be managed even by those in a small institution with limited staff and financial resources.

Case Studies

In Chapter 5, **Laura Monneau** describes how she and her colleagues at the Catholic University of Toulouse responded to a mold outbreak that affected a significant portion of their print periodical collection.

In Chapter 6, **Amanda Maloney and Elena Bulat** describe how they assessed potential risks to the onsite microfilm collection at Harvard Divinity School Library and outline the recommendations they offered based on their findings. In Chapter 7, **Lehel Molnár** describes a collaborative project to digitize unique and historically significant materials held by the Hungarian Unitarian Church Archives in order to preserve the original materials and make their content more broadly accessible. In Chapter 8, **Natalie Bishop and Mariah Hamby** describe a similar project to digitize rare and fragile hymnals held at Gardner-Webb University, especially those in the unique shape-note tradition.

Additional Resources

In Chapter 9, **Priscilla Anderson and Lauren Telepak** complete the volume with an annotated list of resources for those who want to learn more or tackle problems in their situation that are not touched on directly in this volume. Most of these resources are available online, some in multiple languages.

Principles and Practice

CHAPTER 1

An Ounce of Prevention

Basic Principles for Preserving Physical Collections

ERIN MOLLENHAUER

One of the most memorable photographs taken during the devastating 2022 flooding in Lismore, New South Wales, was an image of wet and damaged books being piled up outside of the Lismore Public Library. It was shared widely online as a symbol of the destruction that nature can cause. In response, libraries and individuals around the country sent new and secondhand books to replace the ones that had been lost. Australians face large-scale natural disasters on a regular basis, from floods to bushfires, and the destruction can seem insurmountable. Although the Lismore flooding required mass restocking of the collection, many types of minor disasters are preventable to a great extent. This chapter will identify some of the dangers inherent in physical items typically held in library and archival collections (because of the materials from which they are made) and some of the most common external threats to those collections. It will also recommend best practices for

preventing or minimizing the deterioration and damage that can be caused by these dangers and threats so that costly restoration or replacements are avoided, and collections remain safe and accessible to researchers.

Specific Formats and Their Inherent Dangers

Books and Bound Volumes

The ingredients of a book or bound volume may include organic and animal-based materials. Works produced from the invention of the printing press up until the Industrial Revolution were made of organic materials—paper made from linen or cotton rags, linen thread, and parchment or leather bindings. Paper made from rag generally lasts a long time because cotton or linen has a lower level of acidity than wood pulp, which was used later to make paper. If the text block was gilt-edged, this protects the pages from dust. Leather or parchment bindings, as biological animal products, are particularly prone to "red rot" (caused by gaseous pollution), mold (facilitated by high humidity levels), or cracking (caused by low humidity levels).

From the late 19th century to the mid-20th century, books were printed on cheaper wood pulp paper, which deteriorates quickly due to the inherent acidity of the paper. A paperback novel from the 1950s, for example, now has brittle and yellowed paper.

Modern paperbacks are manufactured using glue in the binding and a plastic coating on the cover. Now that the use of alkaline paper is standard for many publishers, however, books bound in hardback using a stitched binding can be expected to last a long time if kept in stable conditions. Cloth bindings can be susceptible to mold due to the porous nature of the fabric, so their condition should be monitored.

Smaller books (up to 30 cm) can be shelved vertically, while larger volumes should be stored horizontally so that gravity does not cause their heavier text blocks to pull away from the binding. If a book is fragile or damaged, it should be housed in a box made from archival-quality board. The ideal storage environment is between 62 and 73 degrees Fahrenheit (17 to 23 degrees Celsius) and 50 percent relative humidity.

Paper Documents

Paper documents or manuscripts have followed the same manufacturing trajectory as the paper used in books. Although rag paper from the early modern era lasts far longer than paper made from wood pulp, the ink commonly used at that time was made from iron salts and tannic acid from a vegetable source, usually oak galls ("iron gall ink"). This ink worked well for writing with a quill pen, but it is acidic and can eat into the paper if not kept in an ideal environment.

Paper from the mid-20th century was subject to wartime manufacturing standards and is, therefore, thinner and of poorer quality. The standard typewriting ink of the period, however, lasts much longer than the ink used in later copying techniques.

The second half of the 20th century saw the development and expansion of office copying techniques. Stencil copiers, such as mimeograph machines (the best known used the brand name Gestetner) used a stencil to make copies. Spirit duplicators, or roneo machines, used mineral spirits to make copies and can be identified by their smell and purple-tinged ink. Modern copier toner is a polymer powder, which is fused to the paper using heat during the copying process.

The office technology that produced the worst kind of document, from a preservation perspective, was the fax machine. The thermal paper used is coated with a chemical layer (leuco dyes, organic acids, sensitizers, and stabilizers), which is designed to change color when exposed to heat. It is particularly sensitive to heat and UV light, and faxed documents from the 1980s and 1990s have been found to have faded away completely to a blank page. One of the ongoing preservation projects in many archives is to identify records on thermal paper and to copy or transcribe them to acid-free paper before they fade completely.

Paper documents should be stored in buffered archival quality manila folders or wallets. The ideal storage environment is between 62 and 73 degrees Fahrenheit (17 to 23 degrees Celsius) and 50 percent relative humidity.

Photographs

Black and white photographs are made from three components: the base layer (usually paper), the emulsion layer (e.g., gelatin or

albumen), and the image (silver particles suspended in the emulsion). Kodak developed a method for color photographs that uses three layers of emulsion for the red, green, and blue elements (Archambault 2023). The emulsion layer is particularly prone to expansion or contraction caused by fluctuations in the relative humidity of its storage environment and can easily be damaged by fingerprints. Albumen prints and color photographs are susceptible to fading caused by light exposure. All enclosures used for photographic media, including glass media (lantern slides and glass plate negatives), should have passed the Photographic Activity Test (Image Permanence Institute n.d.).

Most photographic formats benefit from cool or cold storage, although this is not always practicable for smaller institutions. If cold storage is not available, then the same environmental conditions as paper will suffice. An in-depth guide to the identification of photographic formats, with further advice on storage, can be found in the British Library's guide, *Preservation of Photographic Material* (Clark, 2021). More detailed information about preserving photograph collections is also provided in Chapter 2 of this volume.

Magnetic Media

The main preservation challenge of magnetic media (cassette tapes, reel-to-reel tapes, and VHS video tapes) is format obsolescence, as the machines required to play them are becoming scarce. The tape itself, made of plastic with a magnetic coating, is prone to mold growth in humid environments and can easily be wiped of its content if brought into proximity with a magnet. The focus of managing a collection of magnetic media currently is to transfer the content to a digital file. Until this happens, the tapes should be stored upright (so that gravity does not pull the tape off the reel) in cool storage (between 44 and 48 degrees Fahrenheit [7 to 9 degrees Celsius]), or, if this is unavailable or too expensive, in stable air conditioning.

Film

Cellulose nitrate film was produced extensively between 1889 and 1939 and used up to around 1950 for negatives and motion picture film (Clark 2021). It is particularly prone to "silvering out" if stored in

a warm or humid environment and is highly flammable. In the 1950s, "safety film" made from cellulose acetate was invented. Although less flammable, it is prone to deterioration of the acetate into acetic acid in a condition known as "vinegar syndrome." Vinegar syndrome can spread to surrounding films, so any film suffering this deterioration should be put into a separate storage area. Photographic negatives are made of the same types of film. As with magnetic media, the ideal storage is cold storage (between -4 and 50 degrees Fahrenheit [-20 to 10 degrees Celsius]). Due to format obsolescence, the priority for this media would be digitization. Any nitrate film should be digitized as a high priority, and the film should then be destroyed or stored away from other collection items in a fire-safe location. More information about the vulnerabilities of film (specifically, microfilm) is provided in Chapter 6 of this volume.

External Threats to Collections

Temperature

The ideal temperature range for books and paper documents is between 62 and 73 degrees Fahrenheit (17 to 23 degrees Celsius). The main concern is avoiding fluctuation, so it is best to aim for stability even if the air conditioning cannot be set to this level. A well-insulated building can help maintain temperature stability even without air conditioning.

Humidity

The ideal humidity range for books and paper documents is 50 percent relative humidity, plus or minus 5 percent. As with temperature, the main aim is to provide a stable environment with minimal fluctuation. Higher humidity will facilitate mold growth and is a major concern for libraries in tropical or subtropical regions. Low humidity is mainly a concern for books with leather or parchment bindings, which can become cracked in dry air. Humidity can be monitored using a digital hygrometer thermometer, available from

archival supply stores. Additional practical advice on climate control in storage environments is provided in Chapter 3 of this volume.

Particulate Pollution

The main reason books and other items should be kept free of dust is not solely to keep them pleasant for use by patrons. It is to prevent the dust from becoming ingrained and causing permanent deterioration and to prevent the dust from becoming a gateway for mold. If the environment is too humid, mold spores can grow on dust more easily than on a clean surface. The best way to prevent dust is to keep shelving and storage areas sealed from the outdoors and regularly cleaned.

Gaseous Pollution

Fumes from paint, carpet glue, or furniture polish are damaging to all formats but are a particular threat to leather bindings. These fumes cause "red rot," which causes the surface of the leather to degrade. It is irreversible and can only be allayed by clean air in the storage environment. When making renovations involving new paint or carpet, collections should be removed and not returned until at least three weeks after the work has been completed, allowing the fumes to dissipate fully.

Pests

All pests are a concern for libraries and archives, although the most damaging pests are silverfish (*Lepisma saccharinum*) and woodworms (multiple species of wood-boring beetles). An integrated pest management program should be implemented, involving regular spraying of the building, thorough cleaning, and the use of insect traps with regular monitoring. Donated items should be examined for pests and rehoused where appropriate before they are added to the collection. If live plants are used in public spaces for aesthetic purposes, the plants should be carefully monitored for pests, but, from a preservation perspective, live plants are not recommended.

Other Preventive Measures

Proper Storage

The ideal shelves are made from powder-coated steel, as they are sturdier and less prone to warping than wood. The building which houses a library should be well insulated, with good plumbing and electricity and as much climate control as possible. Ideally, the walls and roof are constructed of a material with a high thermal capacity (National Archives of Australia 2014). Although natural light may be desirable for patrons, it should never be allowed to shine directly onto collections, as the UV radiation from the sun will cause fading. Library storage areas should also have a robust fire protection system, with heat and smoke detection equipment. Doors and walls should have a two-hour fire rating.

Proper Handling

The main thing to keep in mind when handling rare books and other special collections is to move slowly, take care, and keep the items on a sturdy, flat surface. For books or bound volumes, pay attention to any damage to the binding and how tightly the volume is bound. Do not force a book to open further than it seems comfortable with. Use a cushion to support the book, and use "snake weights" to gently hold it open.

A common misconception about handling rare books is that one should use gloves. Despite widespread images of curators wearing white cotton gloves, gloves are, in fact, bad for the books. They reduce feeling in the hands so that tearing the pages, especially at the edges, becomes more likely. Clean, dry hands without gloves are best for handling rare or fragile books and paper documents. When handling photographs or any object made of metal or glass, however, wearing nitrile gloves is recommended to prevent leaving fingerprints.

Disaster Preparedness

A disaster preparedness plan can help library staff think through the risks that pose a threat to the collection and prepare them to act quickly in the event of a disaster. As climate change causes more severe and frequent weather events, the likelihood of a disaster affecting a library collection increases. A disaster management plan should outline possible risks (e.g., fire, flooding) and their likelihood, based on location and regional climate history. It should outline steps to mitigate those risks as far as possible, such as regular gutter cleaning, and list current contact information for relevant services (emergency services, plumbing, carpet cleaning). Clear instructions on what to do in the event of a disaster should be included and easily findable in the document, and staff should be trained regularly in the appropriate responses. *Be Prepared: Guidelines for Small Museums Writing a Disaster Preparedness Plan* (Heritage Collections Council, 2000) is an excellent guide to preparing a disaster management plan. Advice on developing such a plan (as well as other preservation activities) for small libraries with limited resources is offered in Chapter 4 of this volume.

Maintaining a disaster bin can help in dealing with smaller disasters, such as spills or minor internal flooding. A bin with wheels can be moved easily to the site of the disaster. It should include personal protective equipment (disposable gloves, masks, safety glasses), cleaning equipment (mops, sponges, plastic sheeting), and items for record recovery (paper towels, blotting paper).

Conclusion

It is easy to feel overwhelmed by the range of things that can go wrong. This chapter has identified some of the most common threats—both inherent and external—to the longevity of library and archival collections and offered practical advice for guarding against them. An ounce of prevention is, indeed, worth a pound of cure. With a little forethought and planning, it is possible to keep some problems at bay and address effectively those that do occur, from a spilled drink to a major flood. In a nutshell, the most important aspects of preservation are cleanliness and sturdy protection from the outdoors, which

are goals that do not require expensive measures. Even taking basic measures can facilitate the ongoing use of library and archival collections into the future.

References

Archambault, Michael. 2023. "A Brief History of Color Photography." Peta Pixel. *https://petapixel.com/color-photography/*.

Clark, Susie. 2021. *Preservation of Photographic Material*. London: British Library. Accessed May 18, 2023. *https://www.bl.uk/britishlibrary/~/media/bl/global/conservation/pdf-guides/preservation-of-photographic-material-guide.pdf*.

Heritage Collections Council. 2000. *Be Prepared: Guidelines for Small Museums for Writing a Disaster Preparedness Plan*. Canberra: Commonwealth of Australia. *http://blueshieldaustralia.org.au/wp-content/uploads/2018/03/CAN-Be-Prepared.pdf*.

Image Permanence Institute. n.d. "Photographic Activity Test." Rochester, NY: RIT College of Art and Design. Accessed April 5, 2023. *https://www.imagepermanenceinstitute.org/tests/pat.html*.

National Archives of Australia. 2014. "Standard for the Storage of Archival Records (Excluding Digital Records)." Canberra: National Archives of Australia. *https://www.naa.gov.au/sites/default/files/2020-03/NAA-standard-for-the-storage-of-archival-records.PDF*.

CHAPTER 2

Getting The Picture

Preserving Photograph Collections

AMANDA MALONEY AND ELENA BULAT

This chapter presents a brief overview of some common photographic processes, highlights areas of vulnerability for the various processes, and provides adaptable guidelines for the care and handling of photographic materials and practical solutions for a variety of collections. The goal of the chapter is to emphasize the value and vulnerability of photographs as unique objects, even though photography is a reproductive medium, and to provide reliable resources that can guide readers' decisions as they determine the best possible care for their collections. A list of recommended online and print resources at the end will enable readers to find more detailed information on certain issues.

Understanding Photographic Processes

Most photographs are complex composite structures containing layers of materials that each react differently to various environmental

stresses such as light, humidity, pollution, and temperature. Accurate identification of photographic processes is important because it provides information on their specific vulnerabilities and allows for more targeted preservation planning. This section contains some quick tips for identifying photographic processes, but, for a thorough understanding of processes, one should consult the resources in the References section.

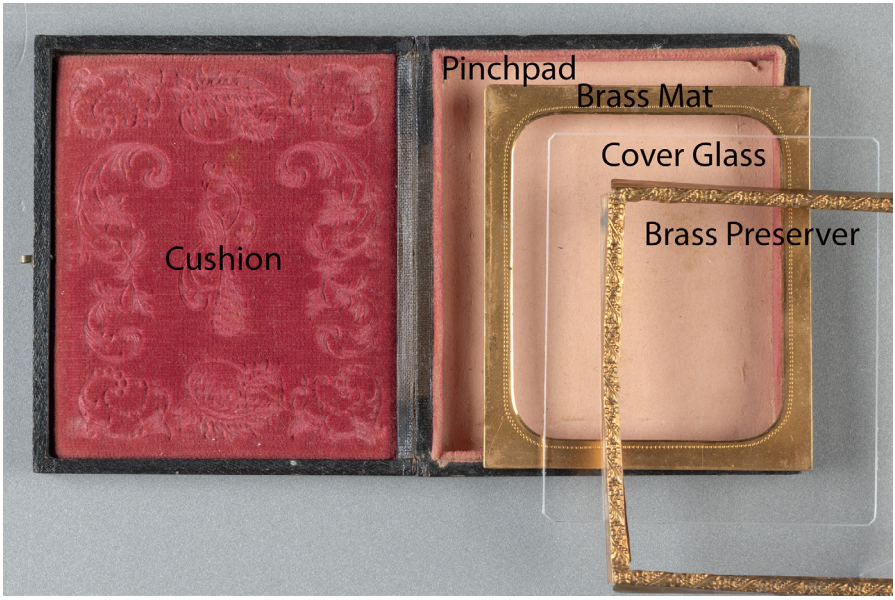

Figure 2.1: An image with labeled elements of a case and plate package that would have housed a daguerreotype, ambrotype, or tintype.

Cased Images

The category of cased images consists of daguerreotypes (in common use from 1839 to 1860), ambrotypes (in common use from 1852 to 1870), and tintypes (in common use from 1853 to 1930). What ties these processes together is that they are all housed in cases, and they are all unique direct positives produced in-camera (no negative is involved). The cases may be made of wood covered in leather, textile, or paper made to look like leather, or they can be made of molded thermoplastic. They have a cloth cushion on the side with the cover and a velvet pinch pad lining the tray side where the plate package is held. Typically, the object will have a brass mat, a cover glass, a metal preserver, and it may also have binding tapes (see Figure 2.1).[1] Many

of the cases and their metal elements were decoratively embossed (Burge 2003). Over time, one or all of these elements may have been removed, replaced, or lost.

The cover glass on all types of cased images is prone to chemical deterioration, which is accelerated in conditions of high humidity. This deterioration is most noticeable as crystalline or liquid deposits on the interior of the glass. This liquid consists of alkaline (high pH) salts and can cause damage to the objects. The preferred solution is to control the humidity and consult with a conservator to see whether the glass can be changed for a more stable modern glass. Until that is possible, storing objects vertically (if the case is intact) or face down will at least prevent the glass deterioration from falling onto the face of the photograph.

Daguerreotypes consist of a silver-coated copper plate support and a silver and mercury amalgam image that is often toned with gold (see Image 2.1). Due to the highly polished silver, it has a mirror-like surface (see Image 2.2) and may appear negative in specular light (see Image 2.3). The surface is easily abraded and prone to tarnishing.

Image 2.1: A cased daguerreotype

Image 2.2: The reflective quality of a daguerreotype

Image 2.3: A daguerreotype in specular light

Ambrotypes consist of a glass support coated with a collodion emulsion that holds the silver image material (see Image 2.4). The ambrotype must be placed on a black background to be read as a positive image. This could be a separate piece of black paper, cloth, or other material; black varnish coated directly on the back of the plate; or colored glass (often called "ruby glass"). The emulsion was usually covered with a clear varnish, and any unvarnished areas will be tarnished.

Image 2.4: A cased ambrotype

Tintypes consist of a lacquered iron support with a collodion emulsion that holds the silver image material (see Image 2.5). Since iron is a malleable support, it may be bent, which can cause the brittle collodion to crack and flake. If exposed to humidity, the iron will form characteristic orange rust. While tintypes can be in cases, they are more commonly found in paper mats or loose, as their supports and images are more robust than those of daguerreotypes or ambrotypes.

Image 2.5: A tintype

Silver Image Print Processes

This category of photographs consists of salted paper prints (in common use from 1840 to the late 1860s), albumen prints (in common use from 1850 to 1910), collodion prints (in common use from 1865 to 1920), and gelatin silver prints (in common use from 1885 to the present). They are all prints on a paper support created from negatives made in a camera. One negative can be used to make multiple prints of the same image.

An important distinction among these prints is how the silver image is formed. In *printed out paper* (POP) processes, it is the action of light alone that forms the image. These processes need long exposures with the sensitized paper in direct contact with the negative. Thus, the print is the same size as the negative. In *developed out paper* (DOP) processes, only a brief exposure is needed to activate the silver forming a latent image, which is made visible through development in a chemical bath. DOP processes need a brief exposure and can use a small negative placed in an enlarger to get a print much larger than the negative. The amount of silver deposited in a DOP is much greater than in a POP, making DOP processes more stable and able to achieve true black tones, whereas POPs tend to have a warm image tone and are more prone to fading over time. Most POPs are toned with gold, which adds greater stability to the silver and a more pleasing image tone. Albumen prints, collodion prints, most salt prints, and some early gelatin prints are POPs. Most gelatin silver prints are DOPs.

Salted paper prints have no binder layer (see Image 2.6). This means that the silver image material sits down in the paper fibers. Under magnification, the fibers will be clearly visible. These prints have warm image tones (unless in perfect condition) and can often be faded. Usually, they have a matte surface, but sometimes they will have an applied coating that alters the surface gloss. They are extremely light sensitive and prone to abrasion.

Image 2.6: A salted paper print with hand applied media

Albumen prints were the most common process of the 19th century (see Figure 2.2). They are similar to salted paper prints but with the important addition of an albumen (egg white) binder layer. The silver image material is deposited in this binder layer, which sits right on top of the paper surface. Paper fibers will still be visible under magnification, but the image is sitting up on top of them rather than down in them as with salted paper prints. The image tones tend to be slightly more yellow than those of salted paper prints, due to the chemical aging of the albumen, and they are prone to fading. The albumen can form a fine network of surface cracks, which give it a characteristic sparkly surface sheen. They have a strong tendency to curl and will usually be mounted to a secondary support board.

Figure 2.2: Three common formats of albumen prints

Collodion and gelatin silver prints have an additional baryta layer applied between the paper and the emulsion. This is a layer of gelatin, usually pigmented white with barium sulfate, that fills in the paper fibers, providing smooth white highlights (see Figure 2.3).

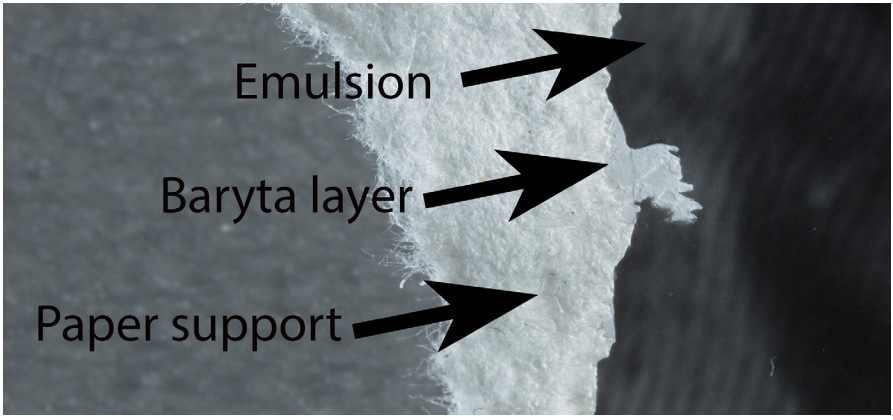

Figure 2.3: Close-up of baryta layer

Collodion prints can be either glossy or matte and were most often toned with gold (see Image 2.7), which gives dark burgundy tones, or platinum (see Image 2.8), which gives neutral image tones.

Collodion is insensitive to humidity so the image material is well protected from moisture and pollutants, but it is quite brittle and can be easily abraded, scratched, or chipped. These prints are also usually mounted to a secondary support board.

Image 2.7: A gold-toned collodion print

Image 2.8: A platinum-toned collodion print

Gelatin silver POP prints had some popularity in the amateur market in the late 19th century and early 20th century, but they are very prone to fading (see Image 2.9). It was the gelatin silver DOP print that was the dominant process of the 20th century (see Image 2.10). Gelatin silver DOPs can have true black image tones and may have a reflective deposit of silver in the maximum density areas known as “silver mirroring.”

In 1968 resin coated (RC) paper was introduced, which added a layer of polyethylene on both sides of the paper to speed up processing times. Early RC prints can be prone to extreme cracking. The backs of these prints will feel like plastic rather than paper.

Image 2.9: A gelatin POP print

Image 2.10: A gelatin DOP print

Chromogenic Processes

This category of photographs represents the most common 20th-century color prints (see image 2.11), negatives, and slides (see image 2.12). It was commercially introduced in 1942 and continues on a smaller scale to the present (2024).

The process of creating chromogenic images relies on the light sensitivity of silver salts, but the resulting image is formed entirely of dyes. Dyes are inherently unstable and can fade even in the dark. The only way to slow this process is to lower the storage temperature. These processes are a high priority for digitizing as a form of preservation. These are also items to prioritize for low-temperature storage if that is an option (see specific recommendations in the section on storage environment at the end of the chapter).

Image 2.11: A chromogenic print

Image 2.12: A chromogenic slide

Negatives

Negatives are the photosensitive object that was in the camera during exposure. It is the original object that is used to make multiple prints and often contains the most detail, making it important to preserve.

Paper negatives (in common use from 1840 to 1850) are silver image material on paper (see Image 2.13). They were often waxed to make them more transparent. They are extremely fragile, can be light sensitive, and are very rare.

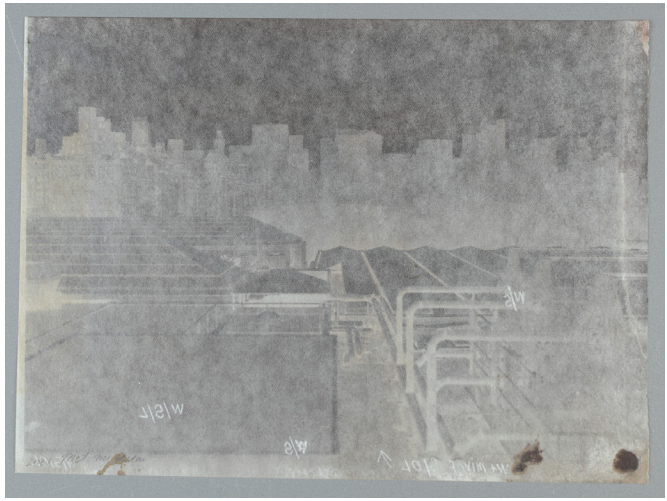

Image 2.13: A paper negative

Glass negatives had silver as their image material and could have a collodion (1851 to 1885) or gelatin (1878 to 1940) emulsion. The image in collodion negatives tends to be a pale brown color and may appear positive if a black backing is placed behind it (see Image 2.14). The image in gelatin negatives tends to be neutral black and may have silver mirroring (see Image 2.15). Gelatin negatives also tend to be on thinner glass supports than collodion negatives and will have smooth, even edges, whereas collodion negatives are more likely to be hand-cut with some irregularities at the edges.

Image 2.14: A collodion glass negative

Image 2.15: A gelatin glass negative. Note the blue cast of silver mirroring on the bottom and right edges.

In addition to chipping and breaking, glass is also susceptible to chemical deterioration, as described in the section on cased images. Paper enclosures are preferred because they allow greater airflow around the object. A low-humidity environment is important for the long-term preservation of these objects.

Negatives on plastic supports all have gelatin as the binder; if black and white, they have silver image material, and, if color, a chromogenic dye image.

Cellulose nitrate (in common use from 1889 to 1950) as a base has been documented to be highly flammable and is regulated by federal code NFPA 40 in the United States. Some nitrate film may say "Nitrate" at the edges or have a notch code to help identify it (see Image 2.16). It is best to have a trained photograph conservator evaluate your collection if you believe you have any photographs with a nitrate base.

Image 2.16: Detail of edge printing and notch code on a nitrate negative

Cellulose acetate (in common use from 1925 to the present) as a base is prone to "vinegar syndrome," which is so named because acetic acid is off-gassed from deteriorating film and smells like vinegar. This off-gassing causes the base for sheet film negatives (see Image 2.17) and roll film negatives (see Image 2.18) to deform and the film to discolor pink or blue as the antihalation layer reforms. It can also attack the silver image material and adjacent objects. Acid detection strips can be used to determine the extent of deterioration. These processes are a high priority for digitizing as a form of preservation. These are also items to prioritize for low-temperature storage if that is an option.

Image 2.17: An acetate sheet film negative

Image 2.18: An acetate roll film negative

Polyester (in common use from 1955 as sheet film and from the 1980s as roll film) is the most stable base, and deterioration is confined to factors associated with the emulsion. For example, gelatin silver films will tend to mirror and/or form redox blemishes if exposed to high humidity and pollutants, and chromogenic emulsions will show dye shifting/fading.

Handling Guidelines

The procedures applicable for handling most archival materials, such as having a clean, well-lit area with adequate space, apply to photographs as well. Many forms of damage resulting from improper handling are permanent. These include fingerprints, scratches, creases, dents, and damage from liquid or items dropping onto the photograph. Photographs do have unique vulnerabilities compared to other types of materials, and the following guidelines are important to follow:

Wear gloves whenever contact may occur with the front surface of a photograph or the metallic components of cased images. The metallic image material and the various binders are sensitive to acids and oils in the hands.

Fully support photographs with both hands and/or on a rigid base such as a piece of archival board during examination, especially for anything visibly fragile or over 11 x 14 inches (28 x 36 centimeters). Photographs are composite structures with multiple layers. Flexing/deformation of one layer causes damage in all layers. Additionally, many photographic prints were mounted on poor-quality, brittle boards that can break easily.

Do not drag anything across the surface of a photograph. Surface quality is extremely significant; photograph surfaces are delicate and easily disturbed.

Cover and mark "object below" any photographs left out on a work surface because they are generally sensitive to light.

Enclosures

The best photographic enclosures are ones that have passed the Photographic Activity Test. Most archival manufacturers will prominently display this. These materials should be widely available in North America and Europe. Sourcing materials of a known stable quality can be more complicated in many parts of the world, but there are some general rules to follow:

Plastic Enclosures

- These should be free of additives and surface coatings.
- Stable plastics in order of quality are polyester, polyethylene, and polypropylene.

Paper and Board Enclosures

- These should be lignin-free and composed of alpha cellulose or rag.
- The surface should be smooth and non-abrasive.
- They should not have dark colors or surface coatings.
- A pH pen can be used to perform a quick qualitative test on the enclosure material to determine whether it is acidic.
- Glassine or glassine-like papers should NOT be used with photographs!

In general, paper enclosures are less expensive, easier to write on, and lighter in weight. The one main advantage of plastic is its transparency, which allows the objects to be seen without being touched. Plastic is the best choice for objects that are handled frequently, but *plastic should NEVER be used with cellulose nitrate or cellulose acetate negatives* because it will trap the acidic off-gassing and accelerate deterioration. Plastic should also be used with caution in environments that are prone to very high humidity (over 65 percent) because swollen emulsions may be able to adhere to the sleeve. Multiple layers of enclosures (for example, an envelope in a folder in a box) will help to buffer the object against environmental changes in storage.

Storage Environment

The storage environment is the single most important factor in ensuring the long-term preservation of photographic materials. Mechanical systems (heating, ventilation, and air conditioning) provide the most reliable way to control the environment for collections, but they are the most complicated and costly for maintaining the

preservation standards of 70 degrees Fahrenheit (21 degrees Celsius) or lower and between 30 and 50 percent relative humidity (RH). In recent years, more research and attention have gone into making more sustainable choices with mechanical systems and using more passive approaches to achieve good preservation environments (Image Permanence Institute, 2012).

Most well-processed prints on paper are stable in standard storage environments. Many of the materials in photographs are highly sensitive to mold, oxidation, and planar distortions, which are encouraged by high relative humidity. The RH should remain below 60 percent and the temperature as cool as reasonably possible for the space. It is best to avoid dramatic fluctuations while allowing for some seasonal drift caused by the exterior climate.

The items that need the most attention are chromogenic processes and anything on a cellulose nitrate or cellulose acetate base. These should be prioritized for digitization and low-temperature storage if that is an option. Low temperature is defined here as anything below standard room temperature, usually identified as 68 degrees Fahrenheit (20 degrees Celsius). In specialized storage vaults, this may mean maintaining a temperature of 50 degrees Fahrenheit (10 degrees Celsius), 40 degrees Fahrenheit (4 degrees Celsius), or below freezing. The colder the temperature, the slower the deterioration, but it is important to consider the economic and environmental costs of maintaining these temperatures through mechanical means. Regardless of storage temperature, the most important factor is keeping the RH in the 30 to 50 percent range for these more sensitive materials.

References

Online Resources

George Eastman Museum. 2022. “Photographic Process Video Series and Glossary.” *https://www.eastman.org/processvideos*.

Harvard University. 2023. “Salt Prints at Harvard.” *https://projects.iq.harvard.edu/saltprintsatharvard/home*.

Image Permanence Institute. n.d. “Identification Methodology and Controlled Vocabulary.” YouTube Video, 6:17. Rochester, NY: RIT College of Art and Design. Accessed July 1, 2023. *https://www.youtube.com/@ImagePermanenceInstitute*.

_____. n.d. “Photo Storage, Display, and Labeling Materials: A Guide to ISO 18902 ‘Photo-Safe’ Testing.” Rochester, NY: RIT College of Art and Design. Accessed July 1, 2023. *https://s3.cad.rit.edu/ipi-assets/publications/photo_safe/photo_safe_english.pdf*; *https://s3.cad.rit.edu/ipi-assets/publications/photo_safe/photo_safe_spanish.pdf*; *https://s3.cad.rit.edu/ipi-assets/publications/photo_safe/photo_safe_portuguese.pdf*.

_____. n.d. “Using Graphics Atlas for Photographic Process Identification.” YouTube Video, 8:19. Rochester, NY: RIT College of Art and Design. Accessed July 1, 2023. *https://www.youtube.com/watch?v=2_NQE-uroHo*.

_____. 2012. “IPI’s Guide to Sustainable Preservation Practices for Managing Storage Environments.” Rochester, NY: RIT College of Art and Design. *https://s3.cad.rit.edu/ipi-assets/publications/sustainable_preservation_practices/sustainable_preservation_practices_all.pdf*.

_____. 2023. “Graphics Atlas.” Rochester, NY: RIT College of Art and Design. *http://www.graphicsatlas.org*.

Library and Archives of Canada. 2022. “Lingua Franca: A Common Language for Conservators of Photographic Materials.” *https://library-archives.canada.ca/eng/collection/engage-learn/publications/ebooks/pages/lingua-franca-intro.aspx*.

National Fire Prevention Association. 2022. “NFPA 40: Standard for the Storage and Handling of Cellulose Nitrate Film.” *https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=40*.

NEDCC. 2018-2020. “Preservation Leaflets 5: Photographs.” Andover, MA: Northeast Document Conservation Center. *https://www.nedcc.org/free-resources/preservation-leaflets/overview*.

Photographic Materials Group Wiki. 2023. American Institute for Conservation (AIC). *https://www.conservation-wiki.com/wiki/Book_and_Paper_Group_Wiki*.

Print Resources

Berg, Paul K. 2003. *Nineteenth Century Photographic Cases and Wall Frames*. Second Edition. Paul K. Berg.

Lavédrine, Bertrand. 2009. *Photographs of the Past: Process and Preservation*. Los Angeles: The Getty Conservation Institute.

_____. 2003. *A Guide to the Preventive Conservation of Photograph Collections*. Los Angeles: The Getty Conservation Institute.

Norris, Debra Hess, and Jennifer Jae Gutierrez, eds. 2010. *Issues in the Conservation of Photographs*. Los Angeles: The Getty Conservation Institute.

Penichon, Sylvie. 2013. *Twentieth-Century Color Photographs: Identification and Care*. Los Angeles: The Getty Conservation Institute.

Reilly, James M. 2009. *Care and Identification of 19th-Century Photographic Prints*. Rochester, NY: Eastman Kodak Company.

Valverde, María Fernanda. 2005. *Photographic Negatives: Nature and Evolution of Processes*. Advanced Residency Program in Photographic Conservation. Rochester, NY: George Eastman House/Image Permanence Institute.

Notes

1 All of the figures and images presented in this chapter are of objects held in the study collection of the Weissman Preservation Center of the Harvard Library.

CHAPTER 3

Keeping Your Cool

A Practical Guide to Climate Control

EZRA CHOE AND BETH FARWELL

It is sometimes hard to keep your cool! Theological librarians work in various contexts and positions and face many challenges, such as budget constraints, staffing limits, and lack of training opportunities. One of their most important challenges is to preserve physical collections, and one of the most important factors affecting the longevity of those materials is climate. Whether your library is small, medium, or large, maintaining appropriate and consistent temperature and humidity levels is critical to avoiding collection disasters, such as mold outbreaks, and to slowing the natural deterioration of the materials.

Despite the importance of climate control, many librarians lack the information they need to manage temperature and humidity effectively in the spaces where collections are stored. This chapter tries to close that knowledge gap so that you can keep your cool. It will help you become more familiar with the equipment that regulates

and monitors temperature and humidity levels, the standards that are recommended for those levels in libraries and archives, and the value of partnering with facilities personnel. The standards identified here are specific to the authors' situation in the United States. You should familiarize yourself with local standards if you live in a part of the world with very different climatic conditions.

The Importance of Climate Control

Preservation is the intentional act of ensuring that the "holdings of a library or archives remain in the best possible condition for as long as possible" (Balloffet, Hille, and Reed 2005, xvii). While this may sound like a straightforward task, preservation is certainly not simple. It includes multiple financial, managerial, and technical concerns (Walker 2003, 1). Recently, scholars have also addressed the impact of climate change on the preservation of cultural materials. According to a study in *Climate Risk Management*, in which investigators assessed 1,232 archival repositories, they concluded that "approximately 98.8% of [the repositories assessed] were likely to be affected by at least one climate risk factor" (Mazurczyk et al. 2018, 118). Given these and other complexities, the task of preservation must be a collaborative effort, requiring the participation not only of librarians but also of facility managers and others with special expertise.

A key component of preservation is identifying the causes and agents of deterioration. The Canadian Conservation Institute (2017) names 10 primary threats to heritage objects, and at least three of these have to do with controlling storage environments: light, temperature, and relative humidity. It is important to be aware of these factors in the deterioration of materials and to implement climate control measures to ensure their long-term preservation. Librarians have often experienced what can happen if such climate control measures are not implemented. For example, in an environment with too little humidity, the air will begin to take up moisture from physical materials like paper and cause irreversible damage. A high-humidity environment will cause those materials to absorb water from the air and swell. High humidity can also contribute to the potential onset of a mold outbreak (Balloffet, Hille, and Reed 2005, 3).

Implementing climate control measures gives librarians unique opportunities to collaborate with other members of their communities for the sake of a common good. Controlling factors like temperature and relative humidity are contingent on equipment, facilities, storage, and infrastructure. Maintaining channels of communication and identifying partners is crucial because this contributes to the mutual end of preservation. Implementing efficient climate control measures depends on these relationships and on how well librarians communicate these goals to administrators, who might not understand why expenditure on preservation is important. We cannot do preservation in isolation; we need the help of others. The importance of this kind of collaboration, especially for small libraries, is addressed further in Chapter 4 of this volume.

Knowing Your Equipment and Partners

Successful control of a library environment requires basic knowledge of the equipment used to regulate temperature and humidity and regular communication with those who install and maintain this equipment. Improvements to controlling indoor environments in a variety of locations and climates have expanded greatly since the introduction of centralized heating and cooling in the 19th century. Sophisticated integrated systems developed during and since the 20th century often combine "fire suppression, lighting, air filtration, temperature and humidity control, and security detection" (Park 1991, 3). While the equipment has modernized, current library buildings may be older, with limited capabilities to incorporate the newest technologies. Such building limitations can affect your ability to control indoor air temperatures and humidity levels, but there are often ways to work within and around those limitations.

The heating, ventilating, and air-conditioning (HVAC) system comprises the primary equipment regulating the library's temperature and humidity. HVAC systems contain several components, including a thermostat, heat exchanger, evaporator coil, condenser coil, combustion motor, and blower motor. Typically, air is pulled from the inside of the building and routed to the HVAC unit for heating or cooling before recirculation. Newer equipment may have built-in dehumidifiers. Older units can be fitted with reheating coils to dry the air if needed. HVAC systems do not pull outside air directly

in through the system, but buildings usually have outdoor air intakes that pull in fresh air to circulate through the spaces (see Figure 3.1).

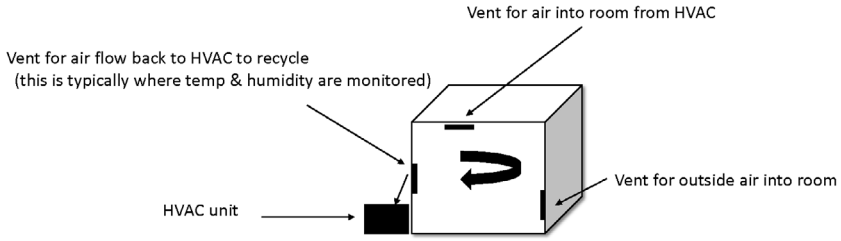

Figure 3.1: Basic air flow in a room with HVAC. This figure is licensed under the Creative Commons Attribution 4.0 International License.

Regular maintenance and monitoring of the system's performance are necessary to ensure its continued effectiveness and efficiency. According to a 2011 publication of the Occupational Safety and Health Administration (OSHA), many common indoor air quality problems "are associated with improperly operated and maintained heating, ventilating and air-conditioning (HVAC) systems…" (OSHA 2011, 3). Maintenance of this equipment is not typically performed by librarians. Establishing positive communication lines with those responsible for maintenance will increase librarians' basic knowledge of how the equipment works in their building. In addition, these partners can help assess existing climate conditions and, with shared information, can be well-prepared for any problems or concerns. In large institutions, there are entire facility maintenance crews with designated staff responsible for HVAC systems while, in smaller organizations, there may be only a single maintenance person who performs all duties, or you might have to rely on third-party installation and repair companies. Regardless of your organizational structure, it is important to know these potential partners. Set up a time to do a walk-through with them. Learn about their work and concerns and teach them about the materials you are responsible for. It is important to establish a relationship on which to base additional conversations about what work can be done to improve the systems. Here are some important initial questions to ask them:

- Where is the library HVAC unit located?
- Is the library a multi-zone system? If so, how are the zones designed?

- Where are the air ducts and vents located?
- How does outside air enter the building?

Have information ready also for your facility/HVAC partners to help them understand your concerns and the needs of your collections. Have there been preservation problems with the collection in the past, including mold outbreaks or water damage? Where are collections located, in separate rooms or in spaces shared with people? Where are rare or valuable collections housed, and what sorts of additional protection do they require? Facilities personnel work with standards established by the National Information Standards Organization (NISO), so sharing the standards specific to library collections is a place to start the conversation (Wilson 1995, 2).

Evaluating and Monitoring Your Environments

Understanding how the equipment works that cools, heats, and manages humidity is crucial to managing the overall stability of your collections, but monitoring the equipment to ensure that temperature and humidity levels are appropriate is also essential. If your equipment fails, and no one is regularly checking humidity levels, a mold outbreak can occur in only a few days, depending on your geographic location. Gathering information on your equipment and collection spaces, such as whether you have one zone to manage or multiple zones with several HVAC units, is helpful when analyzing the environments. General building maintenance should also be assessed, including whether there is adequate sealant around windows and doors and whether there are leaky pipes or roof leaks.

The Northeast Documentation Conservation Center (NEDCC) offers free preservation pamphlets to help you monitor collection environments. According to the author of one of these pamphlets:

> Maintaining stable conditions is crucial. An institution should choose a temperature and relative humidity within the recommended ranges that can be maintained twenty-four hours a day, 365 days a year. The climate-control system should never be turned off, and settings should not be lowered at night, on weekends, or at other times when the library or archives is closed. Additional costs incurred by keeping the system in constant operation will be far less than the cost of

future conservation treatment to repair damage caused by poor climate (Ogden 1999).

While experts do not all agree on specific standards for all materials and geographic locations, the NISO standards on storage parameters (Wilson 1995, 2) will help you assess whether appropriate conditions are being consistently maintained in your library. Many collections are in spaces shared with users and so will require a different range than materials that are in a non-public area or vault. Wilson's Table 1 provides a helpful overview of recommendations (see Figure 3.2).

STORAGE PARAMETERS **NISO TR01-1995**

Table 1: Suggested values for temperature and relative humidity

	Temperature (°F)	Relative Humidity (%)
Combined stack and user areas	70 (maximum)[a]	30-50 [b]
Stack areas where people are excluded except for access and retrieval	65 (maximum)[a]	30-50 [b]
Optimum preservation stacks	35-65 [c]	30-50 [b]
Maximum daily fluctuation	+/- 2	+/- 3
Maximum monthly drift	3	3

[a] These values assume that 70 °F is about the minimum comfort temperature for reading, and 65 °F the minimum for light physical activity. Each institution can make its own choice.

[b] A *specific value* of relative humidity within this range should be maintained +/- 3%, depending on the climatic conditions in the local geographic area, or facility limitations.

[c] A *specific temperature* within this range should be maintained +/- 2 °F. The specific temperature chosen depends on how much an organization is willing to invest in order to achieve a given life expectancy for its records.

Figure 3.2: Suggested values for temperature and relative humidity

Facilities staff should be able to help you track the temperatures and humidity. If not, there are tools to help you monitor trends over time. A *psychrometer* is a hand-held instrument that measures relative humidity and records the information. *Data loggers* can be used to log the information you gather. Another NEDCC preservation pamphlet covers various types of equipment and how they are used (Willer 2022). Based on a 2000-2002 field trial with 180 cultural organizations, a high percentage of the participants recommended using the *preservation environment monitor* developed by the Image Permanence Institute (Turpening 2003). The National Park Service

published the 2011 report "Comparing Temperature and Relative Humidity Dataloggers for Museum Monitoring," which reviews a considerable number of options, covering the hardware specifications of various data loggers and their relative capacities for data retrieval, viewing, and analysis (Arenstein and Alderson 2011).

Setting Realistic Guidelines

The reality is that it is difficult to meet NISO standards. Even in a newly constructed library with the latest equipment, it is not easy to create distinctive spaces with optimal conditions both for people and for each type of material your collection includes: paper, photographs, microfilm, etc. The best recommendation is to determine what your equipment can do and work toward consistent temperature and humidity levels. Consistency in the environment is the most critical factor for material stability.

Stability requires regular maintenance of the HVAC system and maintaining consistent environmental conditions, allowing for seasonal shifts. A good relationship with your facility personnel is important to ensure that this is accomplished. Either you or they will need to monitor conditions. If your facilities staff does this, explain why you need to see the data over extended periods. It is good to test in a variety of seasonal environments so that you can factor in the variants based on outside environmental conditions. Collaborating with your partners in facilities, assess the results, and set a range that the equipment will consistently support. It is acceptable to have a temperature that might be a little higher than NISO standards recommend if you are able to maintain that temperature consistently with only a little seasonal shift. If the equipment is not able to support a reasonable range, and you have evidence of preservation issues, then you will have the data needed to support a request for new equipment or significant adjustments.

Conclusion

Despite the various challenges and difficulties librarians may face in implementing successful climate control measures, they can initiate

tasks that will significantly contribute to overall preservation efforts. Understanding and monitoring the equipment involved in maintaining climate control and building good rapport with partners will go a long way toward achieving the desired results. Evaluating your environment will help you make informed decisions, such as replacing older measuring equipment with data loggers, and can help you shape realistic guidelines that work for your institution.

References

Arenstein, Rachael Perkins, and Samantha Alderson. 2011. "Comparing Temperature and Relative Humidity Dataloggers for Museum Monitoring." *Conserve O Gram* 3/3. National Park Service. *https://www.nps.gov/museum/publications/conserveogram/03-03.pdf*.

Balloffet, Nelly, Jenny Hille, and Judith A. Reed. 2005. *Preservation and Conservation for Libraries and Archives*. Chicago: American Library Association.

Canadian Conservation Institute. 2017. "Agents of Deterioration." *https://www.canada.ca/en/conservation-institute/services/agents-deterioration.html*.

Mazurczyk, T., N. Piekielek, E. Tansey, and B. Goldman. 2018. "American Archives and Climate Change: Risks and Adaptation." *Climate Risk Management* 20, 111–25. *https://doi.org/10.1016/j.crm.2018.03.005*.

Ogden, Sherelyn. 1999. "Temperature, Relative Humidity, Light, and Air Quality: Basic Guidelines for Preservation." Preservation Pamphlet 2.1. Andover, MA: Northeast Document Conservation Center. *https://www.nedcc.org/free-resources/preservation-leaflets/2.-the-environment/2.1-temperature,-relative-humidity,-light,-and-air-quality-basic-guidelines-for-preservation*.

OSHA 2011. "OSHA 3430-04 2011: Indoor Air Quality in Commercial and Institutional Buildings." Occupational Safety and Health Administration, U.S. Department of Labor. *https://www.osha.gov/sites/default/files/publications/3430indoor-air-quality-sm.pdf*.

Park, Sharon, C. 1991. “Heating, Ventilating, and Cooling Historic Buildings—Problems and Recommended Approaches.” Preservation Briefs 24. Heritage Preservation Services, National Park Service Cultural Resources, U.S. Department of the Interior. *https://www.nps.gov/orgs/1739/upload/preservation-brief-24-heating-cooling.pdf*.

Turpening, Patricia K. 2003. “Barbara Goldsmith Preservation Lecture, Spring 2003.” *Abbey Newsletter* 26/6. *https://cool.culturalheritage.org/byorg/abbey/an/an26/an26-6/an26-611.html*.

Walker, Alison. 2003. “Basic Preservation for Library and Archive Collections.” The British Library Board. Accessed June 23, 2023. *https://www.bl.uk/britishlibrary/~/media/bl/global/conservation/pdf-guides/basic-archive-preservation-guide.pdf*.

Willer, Ann Marie. 2022. “Monitoring Temperature and Relative Humidity.” Preservation Pamphlet 2.2. Andover, MA: Northeast Document Conservation Center. *https://www.nedcc.org/free-resources/preservation-leaflets/2.-the-environment/2.2-monitoring-temperature-and-relative-humidity*.

Wilson, William K. 1995. “NISO TR01-1995: Environmental Guidelines for the Storage of Paper Records.” Bethesda, MA: National Information Standards Organization. *https://www.niso.org/sites/default/files/2017-08/tr01.pdf*.

CHAPTER 4

Size Doesn't Matter

Advice for Small Theological Libraries

KARL STUTZMAN

Small theological libraries with limited staff and budgets have special challenges when it comes to preservation. It takes significant human resources to put recommended proactive measures in place to address this important concern, and it takes significant financial resources to implement technological solutions. Small libraries also often have inadequate facilities, which adds another challenge.

As the director of a small theological library, I often encounter professional literature and advice that does not seem easy to apply in my context. I know that I am not alone because many theological libraries are part of smaller institutions. Even when these institutions prioritize the allocation of resources to the library, they are generally not able to support the kinds of staff, structures, and practices that are commonplace at large university libraries.

Fortunately, there are simple, low-cost practices that can be implemented to assess and mitigate threats to the longevity of collections and to prepare for effective response to emergencies when they occur. Fundamental to developing and implementing these practices, especially for small libraries, is the principle of collaboration. This chapter describes two broad categories of practice (I call them "toolkits"), that focus on (1) assessing your situation and potential strategies for minimizing risk and (2) preparing for response to emergencies. These toolkits can empower staff in small theological libraries—when they collaborate with others—to develop an effective culture and program of preservation.

Collaboration is the Key

Collaboration with other institutions and with other staff and offices on your own campus is essential for the success of any preservation program. It is especially important for smaller libraries, though the benefits of collaboration extend to libraries of all sizes. In fact, small, subject-specific libraries often bring special gifts to collaborative efforts, such as unique collections or staff with special subject matter expertise, which can benefit their larger partners. While collaboration itself requires time and relational energy, it pays off in gains to productivity and personal fulfillment, in my experience.

A good starting point for collaboration with other libraries is to engage with colleagues in a national, regional, or local professional association, developing networks for sharing information and working together. Pooling information with peers and discussing cases and solutions that have worked best expands everyone's capacity to plan and act locally with good prospects for success.

Working collaboratively with other staff in your own institution can also pay dividends. In an institution where staffing and financial resources are limited, it is important to establish priorities since it is not possible to attend to every area of need at once. It may be very beneficial to set those priorities as a library team, both to build everyone's awareness of preservation issues and to broaden the scope of thinking. In libraries that are served by only one or two staff members, the team could include, instead, peer librarians from other local institutions or staff from other departments in your own institution.

Collaboration with others, then, is the key to the success of preservation programming in libraries where resources are limited, but what more can be said about the actual work that needs to be done collaboratively? The rest of the chapter answers that question by describing two toolkits, or clusters of practices, which can help us maximize the longevity of our collections.

Assessment Toolkit

The first cluster of recommended practices focuses on assessing your situation from a preservation perspective. Three types of assessment are foundational: relationship assessment, risk assessment, and opportunity assessment.

Relationship Assessment

As Jeff Beck, Library Director at Wabash College, suggested to me in a personal communication, a relationship assessment identifies and characterizes various potential partners to whom one can turn when trying to carry out a complex effort like developing and maintaining a preservation program. A thorough relationship assessment should include relationships both external and internal to the institution and can be documented on a spreadsheet. Columns should include the entity to whom the library relates, the current strength of the relationship, the desired strength of the relationship, the differential between the current and desired strengths, notes about the relationship, and a plan for growth or maintenance (see Figure 4.1).

Relationship name	Current strength rating (1 to 5 where 5 is high)	Desired strength rating	Improvement need	Notes on contributions	Plan for growth or maintenance
Atla	5	5	0	Digitization collaboration, grant opportunities	Maintain memberships and stay alert to announcements
AMBS Maintenance & campus security department	5	5	0	Maintenance issues and security response	Maintain informal relationship, collaborate on response plans
Elkhart Fire Department	1	2	1	Disaster response	Reach out for another walk-thru & assessment
Elkhart Police Department	1	2	1	Security response	Reach out to have an officer do a security assessment
Mennonite Historical Library	5	5	0	Digitization collaboration, preservation expertise	Continue participation in advisory committee, maintain relationships with staff through transitions
PALNI	5	5	0	Digitization collaboration, preservation expertise	Stay active in groups, build relationship with Digital archive coordinator

Figure 4.1: Sample relationship assessment

It may be helpful to conduct this assessment annually to observe the development of the library's relationships over time and to determine where energy needs to be focused in annual planning.

The relationship assessment carries over into risk and opportunity assessments. Relationships will be necessary to plan and carry out mitigation of risks. They will also be needed to capitalize on opportunities to plan and implement preventative measures. My own relationship assessment found that both internal and external relationships for my library are strong overall and provide multiple benefits, not only for preservation but also for other important activities.

Risk Assessment

A risk assessment focuses on identifying the various potential threats to the longevity of library collections and the measures for minimizing those threats. It identifies the relative range and severity of risks as well as their likelihood of occurring. It also provides a beginning point for thinking about mitigation strategies and offers some sense of prioritization of time and resources based on the likelihood and severity of the risks (see Figure 4.2). For example, in my library, theft

received one of the lowest combined scores for likelihood and severity. This means that, although I may continue to make some efforts to deter theft, this is not my highest priority. In another library, theft may rank as a higher risk and thus require a more intensive response. New risks may emerge, old risks may disappear, and still others may change in terms of likelihood and severity. Assessing risks to the library's collections should happen, ideally, on a cycle to ensure that responses remain appropriate.

Risk	Likelihood (1 to 5 where 5 is high)	Severity (1 to 5 where 5 is high)	Total score	Actions to be taken
Fire	1	5	6	dry system for fire suppression, disaster response kit and training
Natural decay (e.g. acid paper, failing bindings)	5	2	7	digitization plan
Other water damage	2	3	5	disaster response kit and training
Pests	2	2	4	patron conduct policy: food and drink
Storm	2	3	5	disaster response kit and training
Theft	2	1	3	security gates and tags
Usage damage	5	2	7	digitization plan

Figure 4.2: Sample risk assessment

Opportunity Assessment

The third tool in the assessment toolkit, the opportunity assessment, seeks to identify proactively creative possibilities for extending the longevity of collections and content. An opportunity assessment can be conducted as a planned initiative, but it may happen more often "on the fly" as unique opportunities arise. In my library, for example, we have addressed a variety of preservation needs in recent years through collaborative digitization projects. Each project has involved a unique combination of partners and resources (with some overlap). Case studies of how digitization has been used in two other libraries

as a tactic for preserving and extending the accessibility of valuable content are provided in Chapters 7 and 8 of this volume.

An opportunity assessment may be conducted for an entire collection or for discrete subcollections within the library. Each subcollection assessed may require a different constellation of potential partners, funders, and technologies based on its research value and uniqueness or the special interests to which it may be related. Thinking about collections in smaller chunks makes it feasible to develop appropriate approaches that are tailored to each situation. While it may be overwhelming to think about preservation strategies as a whole, thinking about them in terms of discrete and unique opportunities can be energizing and productive (see Figure 4.3).

Collection name	Mennonite periodicals		
Collection Definition	*Gospel Herald* & *The Mennonite*		
	Notes	**Strength Rating (1-5 scale where 5 is high)**	
Partners	MHL, MC USA	5	
Funders	Schowalter Foundation	5	
Research needs	High- frequent inquiries	5	
Uniqueness	Medium - multiple libraries hold, but some volumes/issues are unique	3	
Resources available	Collaborative time, Internet Archive, examples of others (e.g. Brethren)	5	
Other considerations		n/a	
Total Score		23	0.92

Figure 4.3: Sample opportunity assessment

Emergency Toolkit

Emergency Response Plan

It is important to have a readily accessible emergency response plan that is updated regularly. In my library, the emergency response plan is included in the online library manual so that all library staff, including student assistants, can access it easily. Our plan is combined with other emergency preparedness procedures because preservation-related disasters are often linked to other types of emergencies.

An emergency response plan should include the following elements:

1. Emergency contacts. Consider your relationships and who might assist in an emergency.
2. Procedures for responding to various types of emergencies (e.g., tornado/severe weather, fire, roof leak). Consider your risk assessment and how to prioritize responses.
3. Procedures for dealing with wet books (a common result of many types of disasters), such as the following:
    a. Wrap very wet books individually in waxed paper or aluminum foil, pack them snugly in a box (flat), and put the box in a freezer as soon as possible. Send the frozen books to a vendor for freeze-drying.
    b. Lay out slightly damp books on a table with pages fanned and standing on end if possible. Use fans to keep air moving around them and to lower humidity. Fan pages frequently as they dry.
    c. Glossy pages (coated stock) will stick together. There may be very little that can be done.
4. Maintain contact information for local book restoration companies and other relevant vendors.
5. Maintain a brief bibliography on preservation. Have books and articles available to staff in an accessible location and provide links to instructional videos (many are available on YouTube).
6. Follow a schedule for review of procedures, for supply inventory, and for training.

Emergency Response Supplies

It is important to maintain a stock of emergency response supplies and to make sure everyone on staff knows where they are located. Consult peers to see what supplies they maintain. Meghan Ryan of the Consortium of Academic and Research Libraries in Illinois suggests the following list (Ryan, 2017):

- Waterproof gloves
- Disposable aprons

- Goggles
- Dust masks
- First aid kit
- Rubber boots
- Polyethylene sheets (plastic sheeting to cover shelves)
- Garbage bags/plastic bags
- Paper towels (for interleaving books)
- Buckets
- Sponges
- Flashlights/batteries
- Scissors
- Mops/buckets
- Vacuums
- Dehumidifiers
- Hand-cranked radio/cell phone charger
- Storage containers
- Clipboards
- Pencils/markers/pens
- Fans

Make sure that these supplies are inventoried and refreshed at least annually. If some items are kept elsewhere in the building because they are in regular use (e.g., mops/buckets), note during your annual review whether their default location has changed. If your budget allows, you might consider duplicating these shared items so that they are always stored with your other library emergency supplies.

Training

Conducting a training session annually for all library staff on emergencies and disasters helps to ensure that everyone working in the library can respond capably in these situations. In my library and in many other small theological libraries, student workers staff the building by themselves during evenings and weekends. This means that they also need to be prepared to respond to emergencies. If emergencies and disasters are stressful for librarians, they are even more difficult for part-time student workers. Be sure that student assistants have contact information for a regular library staff member who can be reached for advice and assistance.

It is helpful to provide an open, friendly environment for the training session, perhaps beginning with some social time with food or snacks available. In a theological library with a particular religious identity, it may also be beneficial to open the meeting with a devotional practice (e.g., a prayer or religious reading). The agenda for the meeting should include a high-level review of the emergency response plan and reminders about where to find supplies and whom to call for help in various situations. The meeting could also include role-playing one of the more likely and potentially impactful scenarios uncovered in a recent risk assessment.

Conclusion

Effective preservation of collections is entirely possible for small theological libraries with limited staff and resources. Although the toolkits described here may need to be altered to fit a particular context, they provide a sense of the patterns by which theological librarians in small libraries can assess their situations and build protection and preservation procedures in an environment of collaborative relationships.

References

Ryan, Meghan. 2017. "Supplies and Tools for Library Disaster Response." Consortium of Academic and Research Libraries in Illinois. *https://www.carli.illinois.edu/products-services/collections-management/supplies-tools*.

Case Studies

CHAPTER 5

Responding to a Mold Outbreak at the Catholic University of Toulouse

LAURA MONNEAU

The library of the Catholic University of Toulouse was founded in 1877, at the same time as the University. It now holds approximately 100,000 books, including 23,000 rare books and 300 periodical titles. The library offers services to 3,700 students, 67 professors, and all employees of the faculties of Theology, Philosophy, Social Science, and Law, and it provides resources in the major teaching areas of these faculties. Theology and religious studies are especially well represented, making up nearly half of our collections. Our periodicals are mostly oriented toward theology, canon law, and the humanities. Along with books and journals, we provide electronic resources (databases, e-books, online journals, etc.). There are five staff members: one curator, three librarians, and one stack attendant, all trained in preservation issues. The library is part of several networks of academic libraries in France and participates in a regional periodicals conservation plan. This plan is a collaborative project

in which librarians from all regions of France have been working together since the 1990s to ensure that all their patrons have access to complete runs of serials that are in good condition and are fully cataloged. At the Catholic University of Toulouse, we are responsible for preserving the entire runs of 55 titles on religious studies.

In 2013, we noticed mold on a few volumes of journals where 197 titles are shelved on 882 linear meters (see Image 5.1). The dates of these titles range from the end of the 19th century to the present day, and the types of binding vary: cloth, cardboard, paper, or coated paper. Thinking it was an isolated incident, we quarantined the few volumes that were affected, while monitoring the rest of the collection. Unfortunately, we soon observed that other volumes were also affected, so we started thinking about how to respond to what could now be regarded as a mold outbreak.

Image 5.1: One of the journals most affected

Understanding Why This Occurred

Two factors in our situation favored the development of mold. The first was high ambient humidity in the stacks where the mold was detected. Our library is located near a dry arm of a river. Groundwater keeps the basement damp, and the water rises by capillary action into the walls of the building. The room where the mold appeared also has a door that faces the outside and is not adequately insulated against external climatic conditions. The second factor favoring mold growth was the accumulation of dust on our collections. For several years, the library did not have enough human resources to dust all of our volumes and storage areas, even though conservation standards recommend that this work be done every year (Mouren 2007). The combination of humidity and dust provides the perfect environment for mold. Overall, more than 300 linear meters of shelving out of a total of 882 in this part of the library were affected by this outbreak.

Developing a Response

Once we understood the scope of the problem, we installed sensors to assess the level of humidity in the space and learned over a period of testing that the humidity was, indeed, high but stable. This stability assured us that there were no new intrusions of water. We also called on a company specializing in preventive preservation in libraries to diagnose the severity of the outbreak and guide us in the steps to be followed. They took samples and determined that these were not dangerous but very common molds. They also assured us that, with the proper equipment, we could dry and vacuum the volumes ourselves—even the ones most affected—to completely sanitize them. This was good news because, at the time, we did not have the funds to use an outside company to handle treatment.

Addressing the Immediate Problem

We first set up a quarantine space to isolate the volumes most affected. For this, we requisitioned new university rooms and had shelves and

sensors installed. These new sites had around 40 percent relative humidity, which was suitable for drying molds. The heavily affected volumes remained there for two months (see Image 5.2).

Image 5.2: One of the quarantine rooms

When the initial period of quarantine was over, we made sure that the mold looked dry, with a change in color and texture as well as a reduction in size. Any that did not look sufficiently dry, we left in quarantine for another month.

The dried materials were then transferred to a dust removal workstation and cleaned by our staff using equipment purchased for this purpose: a vacuum cleaner with an absolute filter (also known as a HEPA filter), brushes of different sizes and materials, and protective gear, such as gowns, gloves, and masks (see Image 5.3).

Image 5.3: Dust removal with staff protections

Staff varied the material of the brushes and the power of the vacuum cleaner according to the type of binding. For example, cloth bindings required longer and more powerful suction with a hard bristle brush than paper bindings. After treatment, we put the volumes back

in quarantine in a second room, also with controlled humidity to ensure that the mold did not return. Two months later, we examined the volumes one last time. If they were fully dry, with no new mold, we moved them to a temporary clean stack space so that they would again be available to patrons, since sanitation of their original location had not yet been completed (see Image 5.4 and Image 5.5).

Image 5.4: Volumes before treatment

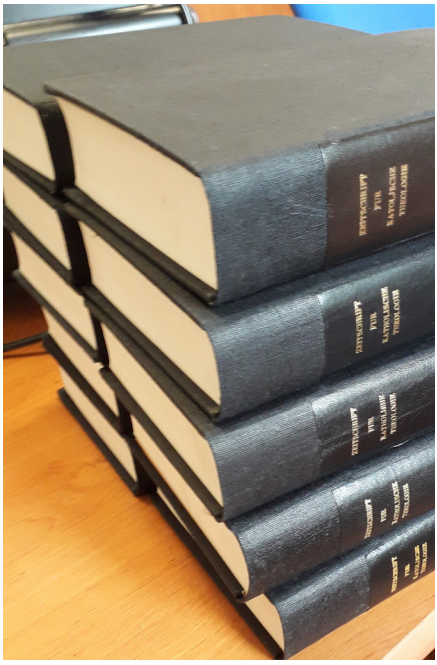

Image 5.5: Volumes after treatment

Tracking our Work

To track our progress on this project, we created files that could be shared with all members of the library team. One of these files was a map of the affected area with the number of linear meters and the degree of contamination for each shelf. If we saw that the mold was increasing before we could handle the volumes, we updated the level of contamination on this file. We also used the file to help us visualize our progress in dusting and cleaning the collections (see Figure 5.1).

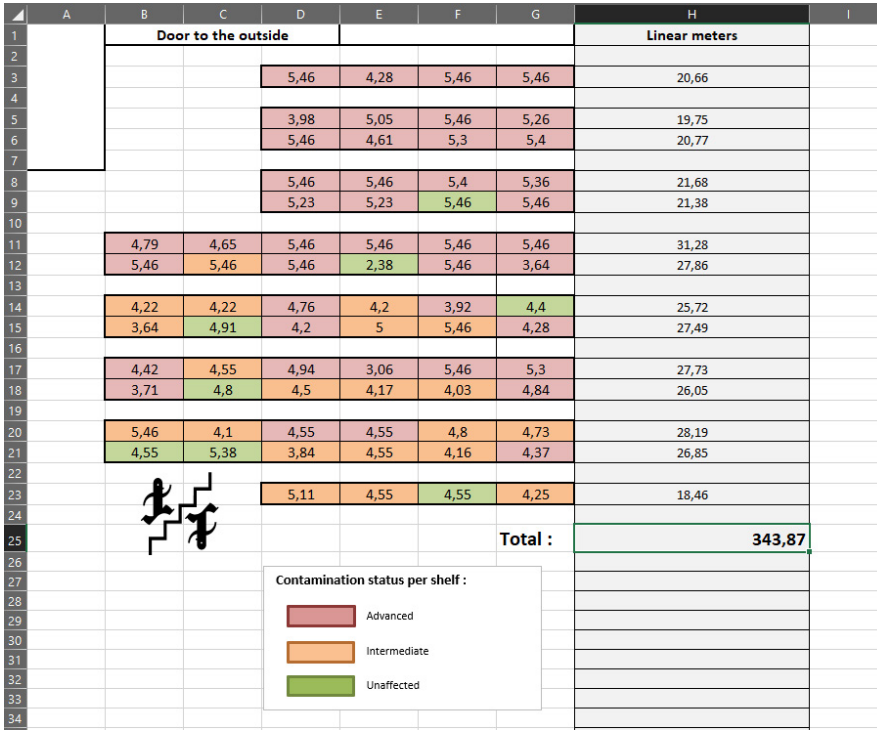

Figure 5.1: File showing levels of contamination in 2017

In addition to this file, we established lists of several kinds. One of these was a list of titles (with call numbers) to be prioritized for treatment, based on the requests of our users. Another was that of the journals already cleaned, with the end date of treatment and the new storage location. These files helped us keep up with what we needed to process as quickly as possible and what was available again for our readers. The status of titles and volumes was also indicated in our public catalog so that users could also keep track of what had again become available to them.

Addressing the Causes of the Problem

Beyond addressing the immediate problem, we wanted, of course, to prevent this sort of outbreak from happening again. Because this was one of our largest locations for storing collections, we could not avoid reusing it for that purpose, so we needed to introduce sustainable

measures to regulate the humidity in the space and establish a schedule for regular cleaning. With the help of University technicians, we installed equipment for ventilation, purification, and dehumidification, and we installed permanent sensors to monitor the climate of the room continuously. Before returning cleaned materials to the space, we also asked the University's maintenance team to carry out a deep cleaning of the room with disinfectant products to prevent mold from developing in the hidden areas of the shelves or on the floor and walls. The final step will be to install a new external door with proper insulation so that moisture cannot enter the space from outside. This will bring the space into full compliance with recommended preventive conservation standards.

Completing the Project

Because this preventative work was completed rather quickly, a number of materials affected by the outbreak were still unprocessed when the room was once again able to receive collections. We therefore called on the company that had diagnosed our situation to assist with cleaning the collections so that the items could be returned to their original home more quickly and again be available to our readers. To facilitate this, we moved all the remaining volumes (444 linear meters) to a commercial storage space off campus, where the conservation company could work on them. Once all of the materials were cleaned, it took us several months to return them to their original home from their various temporary storage places, but the project was finally completed. Now we have implemented our new monitoring and cleaning protocols to make certain that other molds do not appear.

Other Problems Encountered

While remediating this mold outbreak, we had to solve related problems that it caused. The first was that our readers could not access the affected journals until they had been cleaned. We made up for this by making requests for articles from other French and international libraries that hold those serials. This caused our internal interlibrary

loan requests to increase by approximately 10 percent. It also meant that we were unable to honor external requests for articles that were too heavily contaminated to be loaned.

Two other problems were limited storage capacity and staff time. While waiting for the stack room to be cleaned, we had to store the treated materials in our other conservation areas. This created a lack of space for other collections, such as newly acquired books, other periodicals, and donations. Dealing with the contaminated volumes left our staff with little time for routine tasks, such as removing dust from or shelving other materials. As a result, library activities in general were slowed down.

Conclusion

This was, in the end, a very large project. Of the 882 linear meters of shelving in the affected area, about 300 meters of held materials were heavily infected with mold, and over 500 meters contained materials that were very dusty but without mold. We were able to treat roughly half of the volumes in the space on our own and drew on the assistance of our consultants for the remainder. It took us 10 years to make all of the affected documents available to readers again because of our limited human and financial resources.

Because of the commitment of the staff, however, we were able to solve this problem even with our limited means. It took time and some help from a consultant to guide us in the conservation choices, but we learned that we could lead a project of this scale and complete it with minimal inconvenience to users. We feel better prepared to respond in the event of another disaster, and we can offer advice to partners in our regional consortium, several of whom have already asked us for details about our response. We hope that the brief account of our experience presented here will also help other libraries around the world, especially in small institutions like ours, who face similar preservation challenges.

References

Mouren, Raphaële. 2007. *Manuel du patrimoine en bibliothèque*. Paris: Éditions du cercle de la librairie.

CHAPTER 6

Assessing Risk to the Microfilm Collection at Harvard Divinity School

AMANDA MALONEY AND ELENA BULAT

In the spring of 2021, the Harvard Divinity School Library (HDSL) decided to relocate its onsite microform collection, housed at the time in approximately 45 cabinets. HDSL requested assistance from the Weissman Preservation Center at Harvard Library Preservation Services to survey the collection, provide an assessment of its condition, and assess the suitability of its intended new location. This chapter provides an overview of the survey we conducted, our most important findings, and the recommendations we made to the managers at HDSL.

Goal and Approach

The goal of our project was to assess the condition of the 17,667 boxes of microfilm that are part of the HDSL microform collection. The

collection also contains several cabinets of microfiche materials, but these were excluded from our assessment.

We performed an initial survey over two half-days on May 10 and 17, 2021. In general, we found that the collection was in good condition. A mild smell of acetic acid (vinegar) was present in the room, which is quite common for storage areas that contain acetate film materials. The survey team randomly chose boxes—one to two per drawer (of 366 drawers)—to open and do a quick visual inspection of the first foot or so of the film.

We performed a second survey on the mornings of June 14 and June 16. The primary goal of this additional survey was to evaluate the new space and to place acid detection (AD) strips in 43 reels identified as cellulose acetate microfilm to assess the current state of deterioration of these reels. We placed strips in multiple locations/collections to get a snapshot of the level of deterioration present. The Unitarian Universalist collection had been mentioned as an especially important collection, so 10 reels were selected from this collection for testing with AD strips.

Findings of the Survey

Housings

The films are wound on reels with (in most cases) an exterior paper wrapper held in place by a thread-and-button fastener. Each wound film is housed individually in a box that has a self-adhesive label on the exterior. The films appear to be properly (tightly) wound, and the majority are on various types of plastic spools (some solid, some with openings), though some films are on solid metal spools. Most of the boxes are archival metal-edge clamshell boxes, but there is a wide variety of other styles, including boxes from the manufacturer or printer. It appears that the adhesive on the labels of all boxes at some point loosened or failed, and all had been re-secured using clear plastic pressure-sensitive tape (see Image 6.1, Image 6.2, and Image 6.3).

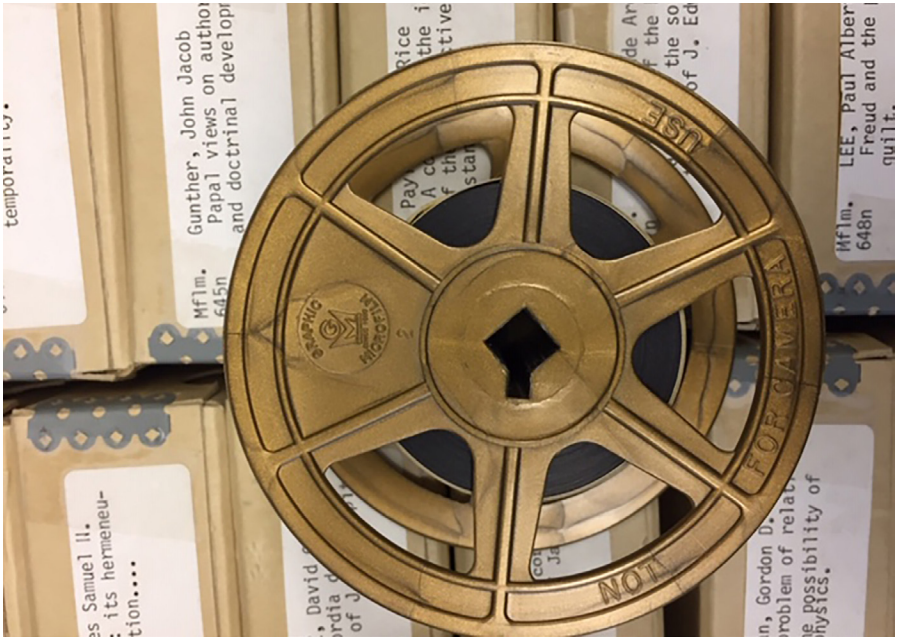

Image 6.1: Plastic reel with open sides

Image 6.2: Standard archival box and metal reel with closed sides

Image 6.3: Original printer's box

We noted with concern the presence of metal spools and the instability of box labels. As cellulose acetate film ages, it releases acids that can cause metal reels to rust, which in turn can cause staining and physical damage to the films. Metal reels are also less porous than plastic and more likely to trap the acids in the film, accelerating its deterioration. The labels may be an issue because the tape used to reattach them could fail.

Film Base and Format

We emphasized reviewing materials with publication/creation dates before 1960 to focus on items that might be on the more vulnerable bases of cellulose nitrate (manufactured from ca. 1889 to ca. 1950) and cellulose acetate (manufactured from ca. 1925 to the present). Cellulose nitrate was not manufactured specifically as a microfilm support, but early films with sprocket holes could be nitrate. A few films with sprocket holes were noted, but these appear to be acetate (see Image 6.4 and Image 6.5). No microfilms on cellulose nitrate support were seen during the survey. Of the films sampled, slightly over

half were acetate. Because we focused on earlier dates, however, the actual percentage likely favors polyester (manufactured from 1955 as sheet film and from the 1980s as roll film). Some of the more recent collections that are housed in boxes from the manufacturer/printer all appear to be on polyester film.

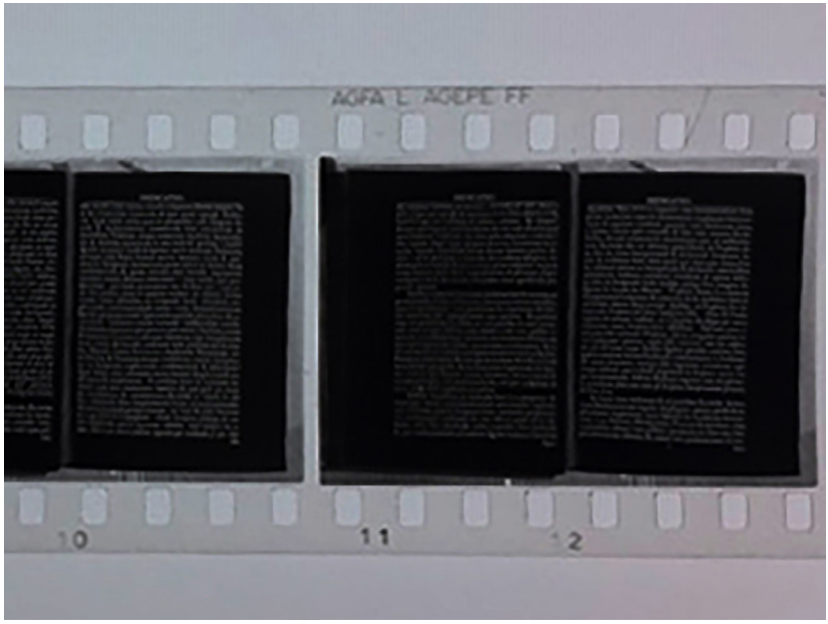

Image 6.4: Negative film with sprocket holes

Image 6.5: Positive film without sprocket holes

We noted that several reels contain both polyester and cellulose acetate films together (see Image 6.6). It was only possible to detect this, however, in the case of films that had open reels to let light through, so this was not included as a category in the survey. A very small percentage of films are 16 mm, and the remainder are 35 mm. We identified one series of journals as vesicular prints by their distinctive blue color (see Image 6.7). The rest of the collection surveyed appeared to be gelatin silver prints and some gelatin silver negatives.

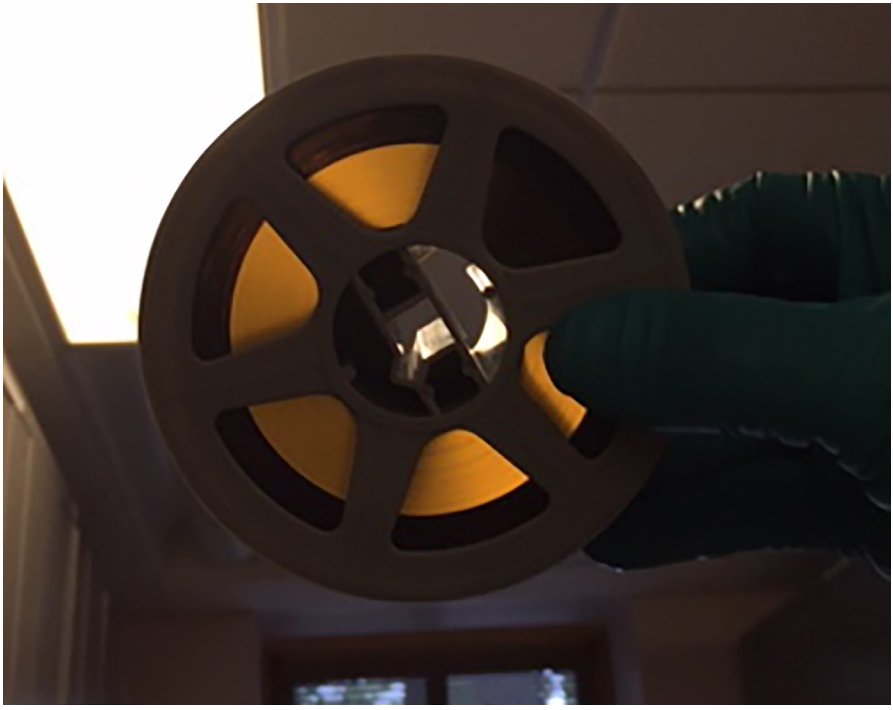

Image 6.6: Light passes through the polyester film on the interior of the roll and is blocked by the opaque acetate film on the exterior of the roll.

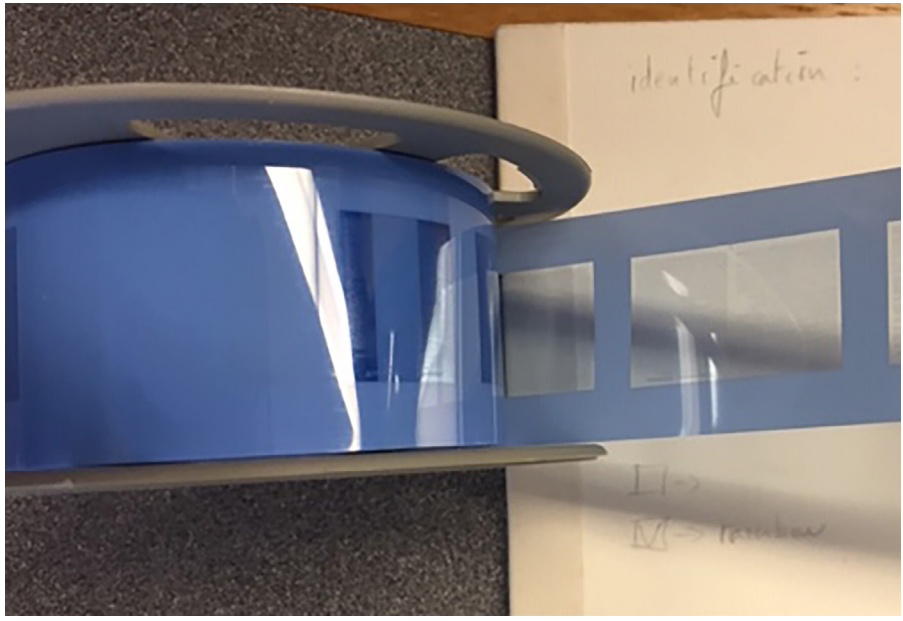

Image 6.7: Vesicular film

Acidity

AD strips detect the amount of acetic acid that acetate film is off-gassing, which provides a qualitative assessment of the progression of deterioration. The scale of AD strips is from 0 (no deterioration) to 3 (shrinkage and warping imminent, possible handling hazard) as defined by the Image Permanence Institute. The value 1.5 marks the point where deterioration will proceed autocatalytically (also known as "vinegar syndrome" due to the scent). For example, fresh acetate films with an AD strip reading of 0 in a storage condition of 68 degrees Fahrenheit (20 degrees Celsius) and 50 percent relative humidity (RH) have an estimated 50 years before they reach the onset of vinegar syndrome, but once an AD value of 1.5 is reached, they only have six years before reaching critical condition. Item-specific manufacturing, processing, storage, environmental fluctuations, and other factors may cause deterioration to happen at different rates with different films.

In this survey, we placed AD strips with 43 films in sealed plastic bags for approximately 48 hours. The total of 43 out of 17,667 is

not enough to be statistically significant, but it does point out some important trends. Of the films tested at HDSL, thirteen had a value of 0.0, nine had a value of 0.5, eleven had a value of 0.75, and ten had a value of 1.0. While none of these are currently at the autocatalytic point, they will likely reach it sometime soon. The only effective way to slow deterioration is by placing the films in low-temperature storage with controlled RH. Low temperature is defined here as anything below standard room temperature, usually identified as 68 degrees Fahrenheit (20 degrees Celsius). In specialized storage vaults, this may mean maintaining a temperature of 50 degrees Fahrenheit (10 degrees Celsius), 40 degrees Fahrenheit (4 degrees Celsius), or below freezing. The colder the temperature, the better for the film, but it is important to consider the economic and environmental costs of maintaining these temperatures through mechanical means. The most important factor is keeping the RH in the 30 to 50 percent range regardless of temperature.

While climate control is critical for acetate film, polyester film is considered stable at room temperature, so special consideration needs to be given only to the image material. In general, gelatin silver image material will remain readable. It may show silver mirroring due to high RH or staining due to poor processing or exposure to pollutants, but, when viewed in transmitted light, these forms of deterioration are often minimized. Dye-based image material, such as in chromogenic color or diazotypes, will benefit from low-temperature storage because they can shift color and fade over time. Diazotypes can also off-gas and accelerate deterioration of adjacent materials.

General Condition

Most microfilms we examined appeared to be in good condition. A few had issues such as silver mirroring, overall pink discoloration due to the reformation of the antihalation layer, and/or orange oxidative staining. These issues are likely due to chemical instabilities introduced during processing, airborne pollutants, and/or aging at room temperature. One microfilm had severe scratching, which caused partial losses to the image. This damage likely occurred from misuse. Another reel did not have a paper wrapper but was secured with a piece of pressure-sensitive tape. The mirroring and reformation of the antihalation layers are indicators that the humidity levels are higher than appropriate for these materials. Humidity is

a powerful driver of the autocatalytic reaction that causes vinegar syndrome.

Storage Space/Furniture

The initial location of the surveyed materials on the second floor of the HDSL building was adjacent to an area under major renovation and was very dusty. The room had a section of audio and video material on the interior wall and several cabinets of microfiche, neither of which was included in this survey. The microfilms were stored in specially designed metal cabinets. These cabinets were moved and reused in a new storage area on the first floor. This area is used as a mail sorting area and has four doors that lead to the main circulation desk and several private offices. It is kept at temperatures for human comfort and has no specialized humidity controls. Unfortunately, this will accelerate the deterioration of the acetate film. The fact that the space will frequently be occupied by staff also poses a risk that the acetic acid could become an irritant to any staff in or near this room.

Intellectual Control

Most microfilms in this collection appear to be unique copies. Only a few are labeled "print copy" or "duplicate negative." In general, if a roll of microfilm is unique to the collection, it should serve as the preservation/storage copy, and a new physical use copy or "work copy" (or a digital copy) should be made for access. According to the Photographic and Imaging Manufacturers Association (1998, 11), "the use of storage copies must be infrequent. If the film is expected to be handled more than 10 times, work copies should be printed from the storage copies." During the height of microfilm use, most collections would have three copies, one that was the original preservation copy, one (usually a negative) that was used for making duplicates, and one that was used for access.

Microfilm is typically seen as secondary material because, historically, it served as an access copy for the primary material that was imaged on it. In some cases, however, that primary material may have been deaccessioned, damaged, or otherwise made inaccessible, leaving the microfilm as the only surviving copy. Ensuring

the long-term preservation of such an item is vital to the mission of the Harvard Library. On the other hand, certain microfilm may be a copy of material that is widely and freely available at various public and private institutions, and the time and expense spent on its preservation could be better allocated. Determining these priorities is a crucial step in developing a preservation plan.

Recommendations

Based on our findings, we made several recommendations to HDSL managers:

1. Given the likelihood that the film base of a large percentage of the microfilms in this collection is acetate, move the collection to a location with better climate control. As acetate films deteriorate and release acetic acid, they pose a risk of accelerating the deterioration of adjacent collection materials and can be an irritant to people who may be in proximity to the film for a length of time.
2. Collect more information about the collection, identifying copies that are unique and/or important to the collection so that action can be prioritized.
3. Identify acetate films and conduct additional AD strip readings. Staff from the Weissman Preservation Center (WPC) can offer a half-day training for staff at HDSL on how to identify acetate film and how to gather information from AD strips. It is not necessary to test every acetate film, but more samples would enable better-informed decisions for the collection. Information on when and where films were printed could help streamline this process because it is likely that batches with the same provenance will be in a similar condition.
4. Determine what to send to the Harvard Depository (HD), which has low-temperature storage, with the following options in mind (in order of preference):
    a. Send all the acetate and polyester film. This option offers the most expedient way to ensure the preservation of the collection and allow more time for gathering information while the items are at HD. It has the most

upfront cost in terms of storage at HD but is the least intensive in terms of staff time. Once items on polyester bases are identified, they could be returned to HDSL for room-temperature storage. Acetate materials could be reformatted (digitized) based on intellectual importance and uniqueness or could be deaccessioned if it is determined that they are of no continuing value to the collection.

   b. Send only the acetate film. This option will require significant staff time from HDSL and guidance from WPC staff. Identifying the film base is a quick procedure, but, given the large size of the collection (17,667 boxes), this could be a lengthy process and should be prioritized for completion in a maximum of one to two years. The benefit would be less cost for storage at HD because items on polyester film are stable at room temperature and can remain at HDSL.
   c. Send only those acetate films that are determined to have high value for the collection. This option would be the least costly in terms of storage at HD, but the additional assessment of value would require even more time and resources to complete the project in one to two years.

5. Determine what to reformat. In addition to ensuring the preservation of these materials, it may be desirable to reformat high-value films that are on an acetate base to reduce the negative impacts of time out of storage and possible damages from use. Reformatting to a digital copy will also increase accessibility and provide more information about the condition of the film than was possible to collect during the brief survey where only the first foot or so of the film could be safely examined. It is possible that the film toward the interior of the reel may be in a different condition than that of the exterior.

Beyond our observations and recommendations regarding the priority of getting the films into a better storage environment, we noted other issues with individual items that could affect their long-term preservation: the presence of metal reels, the use of pressure-sensitive labels on boxes, and the use of pressure-sensitive tape

on films. Therefore, we made the following additional recommendations for action when a film is pulled for access or reformatting:

6. Replace the metal reels with new archival plastic reels.
7. Duplicate the label information in a way that will ensure it is not lost if the exterior label falls off. For example, one might label the paper wrapper or the reel or place a tag inside the box to make sure intellectual control of the collection is not disrupted if the exterior label fails.
8. Remove pressure-sensitive tape from films, reducing any adhesive residues, and wrap with a standard exterior paper wrapper.

Lastly, we noted that other issues may become apparent during access or reformatting, which would need to be addressed case by case.

References

Association for Information and Image Management. 1990. "ANSI/AIIM MS45-1990: Recommended Practice for Inspection of Stored Silver-Gelatin Microforms for Evidence of Deterioration." New York: American National Standards Institute. *https://law.resource.org/pub/us/cfr/ibr/001/aimm.ms45.1990.pdf*.

Association for Information and Image Management. 1998. "ANSI/AIIM TR13-1998: Preservation of Microforms in an Active Environment—Guideline." New York: American National Standards Institute. *https://webstore.ansi.org/standards/aiim/ansiaiimtr131998*.

NEDCC. 2017. "Microfilm and Microfiche." Preservation Leaflet 6.1. Revised Edition. Andover, MA: Northeast Document Conservation Center. *https://www.nedcc.org/free-resources/preservation-leaflets/6.-reformatting/6.1-microfilm-and-microfiche*.

Photographic and Imaging Manufacturers Association. 1998. "ANSI/PIMA IT9.11-1998: Imaging Materials—Processed Safety Photographic Film—Storage." New York: American National

Standards Institute. *https://law.resource.org/pub/us/cfr/ibr/001/aimm.it9.11.1998.pdf*.

Reilly, James M. 1996. “IPI Storage Guide for Acetate Film.” Revised edition. Rochester, NY: Image Permanence Institute. *https://filmcare.org/pdf/acetate_guide.pdf*.

CHAPTER 7

Preserving Hungarian Unitarian Church Archives Through Digitization

LEHEL MOLNÁR

This chapter provides a brief account of an ongoing collaborative project to digitize unique and historically significant materials held by the Hungarian Unitarian Church Archives in Kolozsvár (Cluj-Napoca, Romania). Kolozsvár is the Hungarian name of a city located in the historical region of Transylvania, which is currently encompassed by Romania. In the 16th century, the population was very receptive to ideas generated by the Reformation, and documents held by the Archives date from that period to the present. The project described here commenced in 1999 as an effort both to preserve these documents through digitization and, by doing so, to make them more accessible to researchers around the world. I will outline the tools and methodology we used, taking into consideration the constraints imposed by our modest financial resources. I hope that our work can serve as a model for others with limited resources who want to digitize their own archival materials. Before turning to

the project itself, however, it may be useful to provide a little more background explaining the significance of the materials themselves.

Hungarian Unitarianism

In 1517 the Catholic monk Martin Luther posted his 95 theses on the church door at Wittenberg in Germany, marking the advent of the Protestant Reformation. The seeds of reformation found a fertile field in Transylvania, then still a part of Hungary. Many Transylvanian students went to Wittenberg as academic pilgrims to prepare for the Protestant ministry, returning with Luther's books and an evangelical Protestant enthusiasm for the idea of reformation. A majority of Transylvanians consequently became Lutherans, with only a small percentage electing to remain Catholic. The ideas of the Swiss reformers, Calvin among them, also subsequently took hold in the region, eventually dividing the Protestant faithful into two parts. Most of the Hungarians in Transylvania became Calvinists, while their Saxon neighbors retained their Lutheran affiliation.

The most influential of the Transylvanian theologians of the time was Francis David, whose personal religious development—beginning in Catholicism and embracing, in turn, both Lutheranism and Calvinism—paralleled that of a majority of the region's population. David's collective teaching, later to be called "unitarianism" because he came to reject the doctrine of the Trinity, conquered not only the subjects of Transylvania but their monarch as well. The ruling Prince of Transylvania and King of Hungary, John Sigismund, is remarkable for being the only Unitarian king in history—and a sagacious one at that. In 1568 Prince Sigismund convened a diet (assembly). This Diet of 1568 issued the Toleration Act, which affirmed the principle of religious freedom and so legalized Unitarianism (Molnár and Youngman 2003, 83-84).

The Hungarian Unitarian Church Archives in Kolozsvár traces its history to the first half of the 18th century when the germ of the present leadership structure for the Church came into existence. A board of leaders, the Consistory of the Unitarian Church, was given broad responsibility. In addition to overseeing all church affairs, it was also responsible for education (founding a Unitarian college at Kolozsvár) and for the broader needs of the community (Bodrogi and Molnár 2001, 51).

During the Counter-Reformation in Transylvania, the Unitarian Church was repressed. Many lands, properties, and church buildings—including the church (1716) and the college (1718) at Kolozsvár—were expropriated by Catholic authorities. Efforts to survive led to a reorganization of the Church, which left the Consistory in charge only of church affairs. Papers documenting these efforts to form a viable structure for the Church, along with other important historical documents, needed to be preserved and protected. Information about storing documents is available from the end of the 18th century. Documents were stored at first in boxes at the house of the "superintendent" (bishop) and were later transferred to the old Unitarian College. After a new college (now John Sigismund Unitarian College) had been built, these archives and the Church's headquarters found a permanent home in this building (Molnár 2017, 34).

The oldest document in the collection, the "Partial Synodal Minutes," dates from 1587, less than twenty years after King Sigismund recognized Unitarianism as a legitimate religion with national standing equivalent to that of the Catholic, Lutheran, and Reformed Trinitarians. Current holdings include architectural plans, artifacts (wax seals, stamps, and other three-dimensional objects), audiovisual records (audiotapes, photographs, photographic slides, and videotapes), parish records, personal papers (sermons, correspondence, and manuscripts) of bishops, historians, theologians, and teachers, records generated by ancillary organizations (for ministers, women, and youth), financial records of the denomination, synod minutes, religious education materials, royal dispensations, and Unitarian denominational publications. Holdings also include an extensive collection of correspondence attesting to the historical relationship among English, American, and Transylvanian Unitarians, dating back to the early 19th century. Of notable importance is an original handwritten sermon by William Ellery Channing, a prominent figure in American Unitarian history. This sermon was found among the personal belongings of Bishop Görgy Boros (1855–1941), who was awarded an honorary doctorate by Harvard University in 1900 (Molnár and Youngman 2003, 86).

Origins of our Digitization Project

The effort to digitize records of the Hungarian Unitarian Church Archives can be traced to 1999 when George M. Williams, a professor of Comparative Religion at the University of California, conceived the idea. Williams had successfully digitized deteriorating Sanskrit texts in India and, motivated by his affiliation with the Unitarian faith, envisioned similarly enhancing accessibility to the cultural heritage of the Unitarian Church in Transylvania. Recognizing the value of this heritage for researchers and all individuals interested in the subject, Williams generously donated a digital camera and taught us how to use it.

Two other former professors from the United States, Deborah J. Youngman (Boston University) and Kathleen Dunlap (Tufts University Medical School), established in 2000 the Unitarian Transylvanian Archives Project (UTAP) under my direction and with the support of the Hungarian Unitarian Bishop Árpád Szabó (Molnár and Youngman 2001). The UTAP project enabled us to renovate our facility and to purchase more advanced equipment for digitization. I attended various courses to learn the methodology of digitization, including a month-long training course in 2002 at the International Summer School on Electronic Publishing for Cultural Heritage Studies, which was organized by the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences.

The Right Tools for the Job

Digitization denotes the conversion of a pre-existing work, be it textual, visual, or auditory in nature, from its original medium into a format that can be interpreted and processed by a computer system. The purpose is to ensure the searchability of the works, to expand access to them, and to safeguard the physical integrity of the originals. It is important that the process of digitization does not harm or compromise the condition of the original work and that the creation and use of digital files adhere strictly to respect for property rights, personal rights, copyright regulations, and other relevant legal considerations.

Protecting the integrity of the original works requires selecting appropriate tools for their digitization. *Document scanners* are one popular option for this work and come in various types to accommodate specific needs (flatbed, sheet-fed, portable, etc.). *Document cameras*, designed to capture high-quality digital images of documents, books, or manuscripts, are another common choice. High-resolution digital cameras are particularly advantageous for digitizing large or delicate documents that may present challenges for scanning processes. In the initial stages of our project, we employed a 3.3 megapixel Canon S20 camera and later upgraded to a 5 megapixel Olympus E20N camera. In 2010 we transitioned to an 18 megapixel Canon EOS 7D digital single-lens reflex (DSLR) camera.

With the continuous advancements in the mobile phone industry, the built-in cameras of smartphones have progressively improved to a level that rivals that of a DSLR camera. I have found the iPhone XS Max to be a viable alternative, but smartphones with similarly good cameras are also available from Samsung and other manufacturers. The ubiquity of mobile phones in today's society means that almost everyone possesses one. In smaller archives or libraries, where it may not be feasible to acquire more sophisticated digitization equipment, a mobile phone can be used to capture respectable images of documents, manuscripts, and books.

We found that, when employing a large camera for digitization, certain additional equipment becomes necessary to ensure optimal results. A *tripod* or *stand* is indispensable to provide stability and minimize camera shake during image capture. Overhead lighting plays a crucial role in minimizing shadows or uneven lighting across the document. Using a *cable release* or *remote control* allows the photographer to trigger the camera without touching it, thus reducing the likelihood of unintended movement or vibration that can affect image quality. Because smartphones are lightweight, handheld capture can produce good images without this additional equipment, but there are low-cost stands for these as well.

To ensure good image quality, the camera should be configured for a resolution of at least 300 dpi for standard documents. Higher resolutions may be required for documents with fine details or small text. The camera mode should be set to AV (or A on certain models), indicating Aperture Priority Mode. This allows the user to select manually the desired aperture value while the camera automatically adjusts the shutter speed for each image captured. To enhance the depth of field, it is advisable to set the aperture to a minimum of f/11

or f/16, as this expands the range within which the captured image remains in sharp focus. We learned that images should be captured in the highest bit-depth available (e.g., 24-bit color) to preserve details and colors.

Methodology

In contemporary professional literature, there are many descriptions of recommended processes for digitization. In this last section, I delineate the method we implemented at the Unitarian Archives, emphasizing its cost-effectiveness and versatility. The workflow we use is a series of sequential steps and tasks, including procedures for document preparation, image capture, post-processing, quality assurance, metadata creation, and backup and storage. I present it here as a set of recommendations based on our experience in the hope that others will find it useful.

Document Preparation

Proper handling and preparation help preserve the integrity of the documents during the digitization process. Wash your hands with soap and water before handling materials to prevent transferring the oils from your skin onto the materials. Sort and arrange the documents you want to digitize. Remove any staples, paper clips, or other removable binding materials, and flatten folded or creased pages. Clean the documents, removing dust or dirt with a soft brush or cloth. If necessary, use weights or document holders to keep the document flat and prevent pages from curling. I often use river-washed stones as weights. Putting sand in bags of different sizes can also create variable weights and costs little.

Image Capture

Use the chosen tools and equipment to capture high-quality digital images of the documents. Prepare the setup by placing a piece of white or black paper or cloth on the reproduction table. This serves as a consistent background against which the document to be digitized

will be positioned. By ensuring a uniform and even background, you can minimize potential distractions or variations in the background, enhancing the overall visual clarity of the digitized document. Align the camera or phone on a tripod or stand directly above the document, ensuring that it is exactly parallel to the document's surface. Fill the camera frame with the image, making sure the entire page is captured, and snap the photo. The first capture should use color control patches, enabling adjustments to color settings such as white balance, color temperature, and saturation. This facilitates precise and consistent color representation, ensuring accuracy throughout the digitization process.

Post-Processing

After the images have been created, it is essential to save the digital files in formats that are widely supported and non-proprietary to ensure their long-term accessibility and usability. In the context of archival digitization, you should create master files without compression, if possible, to minimize loss of data. User copies, intended for regular use, can be created in smaller and more efficient compressed formats. Archival guidelines endorse the use of the Tagged Image File Format (TIFF) for master files. TIFF is renowned for its capacity to maintain image integrity and fidelity over time. Formats such as JPEG, which are known to involve data loss through compression, can be employed to create user copies.

Quality Assurance

The next step is to conduct a comprehensive quality check. Reviewing samples of the digital images you have created is important for identifying and rectifying any photography errors and addressing any problems with image quality. Assess the overall image quality—resolution, clarity, color accuracy, and legibility—to ensure that the images meet the required standards. The easiest way to correct errors is to digitize the page or pages in question again.

Metadata Creation

To ensure effective management of digitized documents, it is vital to establish a consistent and meaningful file naming convention and to create descriptive metadata. This metadata should include essential details, such as title, author, date, keywords, and copyright information. By recording and preserving this information, the digitized documents become more discoverable and comprehensively documented. It is also advisable to arrange the files into logical folder structures based on relevant categories or subjects. This facilitates efficient retrieval and navigation of the digitized documents.

Backup and Storage

To safeguard digitized documents from potential loss or damage, it is imperative to implement robust backup systems. Store copies of the digitized files on external hard drives, use cloud storage services, or combine these approaches. Redundancy ensures that, even in the event of computer failure or data loss, the digitized documents remain protected and accessible. In the course of our project, we developed a relationship with the Harvard Divinity School Library and reached a formal agreement that they would deposit our images in the Harvard Library Digital Repository Service. This collaborative solution will ensure the images' perpetual preservation and accessibility to a worldwide audience.

Conclusion

In this chapter, I have described a successful project to safeguard a valuable cultural heritage and to broaden scholarly access to it through digitization. Even small organizations with limited resources can achieve this success through collaboration. My hope is that this chapter will inspire theological librarians and archivists in similar circumstances to consider digitization as a way to preserve and expand access to their own valuable historical resources for future generations.

References

Bodrogi, Enikő M., and Lehel Molnár. 2001. “Az Erdélyi Unitárius Egyház Gyűjtőlevéltárának rövid története” [A Brief History of the Transylvanian Unitarian Church Archives]. *Korunk* [Our Age] 3, (September): 50–58.

Molnár, Lehel. 2017. “A Magyar Unitárius Egyház intézményrendszere” [The Institutional System of the Hungarian Unitarian Church]. In *A reformáció kincsei, Vol. 3, A protestáns kisegyházak Magyarországon* [Treasures of the Reformation, Vol. 3, The Protestant Churches in Hungary], edited by Kollega Tarsoly István and Kovács Eleonóra, 34–38. Budapest: Tarsoly Kiadó [Tarsoly Press].

Molnár, Lehel, and Deborah J. Youngman. 2001. “The Transylvania Archives Project: Documenting the History of a Unitarian Community.” *The Journal of Unitarian Universalist History* 28, no.2: 1–8.

Molnár, Lehel, and Deborah J. Youngman. 2003. “Unitarian Heritage in Transylvania: Digitizing the Documents at the Unitarian Archives and Library in Cluj.” *Zeitschrift für siebenbürgische Landeskunde* 26, no. 1: 83–87.

CHAPTER 8

Preserving Hymnals Through Digitization at Gardner-Webb University

NATALIE BISHOP AND MARIAH HAMBY

Gardner-Webb University is a small, private liberal arts college rooted in the Baptist tradition and located in the rural foothills of North Carolina. The Hymnal and Songbook Collection in the Gardner-Webb University Archives contains 124 volumes, with 109 unique titles spanning from 1850 to 1982. This collection was selected for digitization because of increasing requests from researchers and musicians to use the collection. It includes rare titles published by regional printing/publishing houses across the Carolinas, Tennessee, and Georgia. "Shape-note" titles are of particular interest and are a high priority for digital preservation because they represent a tradition uniquely concentrated in the Appalachian region of the southern United States. The four shapes in this system of notation (triangle, oval, square, and diamond) correspond to the four syllables (fa, so, la, mi) developed by Thomas Morely in 1597 (Marini, 2003). The intention was to create a notation system that could be

easily understood by large populations of varying literacy and little formal musical training (Marini, 2003). The southern United States is the only location in which an unbroken tradition of four-shape (and later seven-shape) notation has endured (Music, 2005).

The digitization project described in this chapter focused on rare, public-domain titles, many of which are regionally published shape-note editions. The physical condition of the hymnal collection was a significant reason for digitization but also posed challenges for the project. Book manufacturing during the 1880s through the early 1900s used highly acidic raw materials, resulting in artifacts that are unsuitable for frequent use and long-term preservation (Kurlansky, 2016). Yet hymnals are, by design, texts intended for weekly use and handling. This problem makes the digital preservation of these texts urgent. We offer here a brief description of our initial efforts to pursue this goal.

Development of the Project

Our project began in May 2019 and concluded in April 2020, focusing on 43 titles that were in the public domain and, therefore, eligible for digitization. We began with an in-depth analysis of these titles, creating qualification rankings for digitization, establishing metadata standards, and determining a plan for long-term file storage. We were able to devote roughly 25 hours per week to the project.

A spreadsheet of the titles was created using OCLC's Digby inventory app. Columns for publication date, notation style, and worldwide holdings were included to enhance the ability to sort and search titles. Worldwide holdings were collected for each title, using the OCLC Number/Unique Identifier; titles with multiple holding records used the record with the greatest number of worldwide holdings. A comprehensive internet search was conducted to check the digitization status of each title. To qualify as a digitized volume, each hymnal or songbook needed to be accessible as a complete facsimile of the print edition, including covers, front matter, and advertisements. The digital edition needed to be accessible through a stable open-access platform, such as the Internet Archive, HathiTrust, or an institutional repository. Hymnals digitized through *Hymnary.org* were categorized as not digitized because they only contain digital images for individual hymns rather than complete hymnals.

The analysis allowed us to establish the following guidelines to qualify for digitization:

- Qualifier 1: The title is rare (defined as fewer than 25 worldwide holdings in WorldCat).
- Qualifier 2: The title was published regionally (defined as published in North Carolina or one of its bordering states—South Carolina, Virginia, Georgia, or Tennessee).
- Qualifier 3: The title uses shape notes.

Forty-three hymnals were scanned as part of the project. To be eligible for digitization, a hymnal needed to have met at least one of these qualifiers. Of the 43 titles, 18 titles met all three qualifiers.

Plan for Digitization and Metadata Creation

Hymnals and songbooks were scanned using a Bookeye 4 V2 scanner at 600 dpi with 32 bit color depth. JPEG was used for the digital surrogate file and PDFs with optical character recognition (OCR) capability as a digital derivative. JPEG was chosen as the preferred surrogate medium because it allows flexibility in file use and sharing and takes up less storage space than TIFF. Master surrogates were stored both in institutional cloud storage and on an external hard drive.

Digitized hymnals were uploaded to both the Internet Archive and the Digital Commons, Gardner-Webb's institutional repository, which serves as the primary access point for the collection. The rationale for also uploading to the Internet Archive was two-fold. First, the Digital Commons platform includes an Internet Archive integration that displays an interactive "flipbook" at the bottom of each record page, allowing users to engage with and preview a text before downloading (see Figure 8.1). Second, because researchers use the Internet Archive as a standalone database, creating an additional access point there increases exposure to the collection.

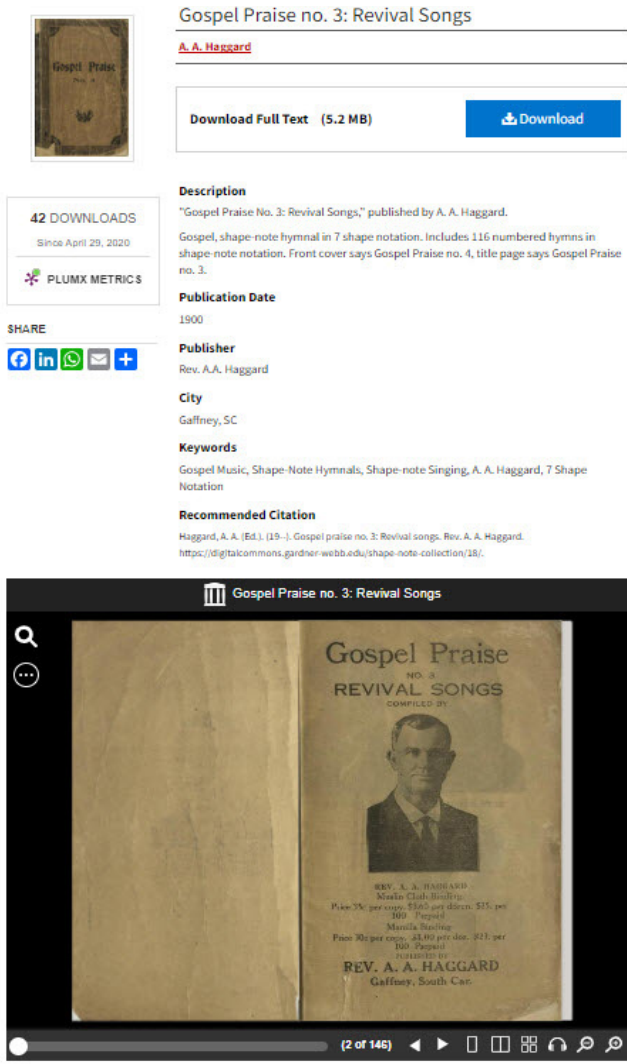

Figure 8.1: Digital Commons record page with interactive flipbook

Metadata writing caused a significant bottleneck in the digitization process. While creating a standardized metadata template was easy, writing descriptions was time-consuming. Initially, the template included indexing of topics (and sometimes of unique or rare hymns) for each title, but this method was unsustainable. Since each record includes an OCR PDF, we decided to eliminate the topical indexing and only highlight unique elements, such as notation style or regional publication. This process increased efficiency and

elevated readability of the descriptions, as the following examples illustrate.

Description Following the Original Metadata Template

Sankey, Ira D., James McGranahan, and George C. Stebbens, eds. 1895. *Gospel Hymns, nos. 5 and 6 Combined, Breiver Edition*. Chicago, IL: The Bigalow and Main Co. *https://digitalcommons.gardner-webb.edu/shape-note-collection/1/*

> "Gospel Hymns, nos. 5 and 6 Combined," edited by Ira D. Sankey, James McGranahan, and George C. Stebbin, published by the Biglow & Main Co.
>
> Shape Note Hymnal - 438 hymns in shape-note notation, with indexes. Character note edition.
>
> Topical Index: Adoption; Assurance; Blood of Christ (The); Children; Christ a Friend; Christ Seeking; Christ, the Shepherd; Coming of Christ (the); Confession; Consecration; Cross of Christ (The); Faith; Fear Not; Fellowship with Christ; Funeral; God's Word; Guidance; Heaven; Holy Spirit; Invitation; Joy; Love; Miscellaneous; Missionary; Parting Hymns; Peace and Rest; Praise; Prayer; Precious Promises; Refuge; Repentance; Resurrection; Salvation; Suffering of Christ; Temperance; Temptation; Trust; Warning; Work; Worship.

Description Following the Modified Metadata Template

Vaughan, James D. ed. 1910. *Voices for Jesus: for Sunday-Schools, Revivals, Conventions and All Religious Work and Worship.* Lawrenceburg, TN: James D. Vaughan. *https://digitalcommons.gardner-webb.edu/shape-note-collection/3/*

> "Voices for Jesus," edited by James D. Vaughan and published by James D. Vaughan, Music Publisher.
>
> Shape Note Hymnal with 7 shape notation. Includes Index.

The reason for highlighting hymnal publishers and printers in the metadata is that the rarer titles were often produced by small printing houses that are now defunct. George Pullman Jackson noted in 1933 that there were at least 29 known publishers of seven-character shape notes in the southern United States (Goff, 2002). While some regional publishers, such as James D. Vaughan, John B. Vaughan, George Sebren, and Arthur Sebren, appeared in the scholarly literature on shape notation and singing schools, other regional printers are absent from the literature. By creating metadata points for those absent in the literature, such as George A Minor, David E. Dortch, Alfred Helton, A. A. Haggard, and George W. Bacon, we hope to assist scholars in expanding the scope and depth of shape-note research.

Use of the Digitized Collection

Based on analytics from May 2020 through May 2023, use of the collection has been significant. There were 3,572 metadata page hits of the collection on the Digital Commons platform (1,296 of these were downloads), and there were 2,533 views on the Internet Archive platform (Internet Archive does not provide access to information about downloads).

The titles listed below were among the top Digital Commons downloads, Digital Commons page views, and Internet Archive page views during the period analyzed. All of these titles are shape-note hymnals except for Coleman's *The Modern Hymnal* (round note) and Sankey's *Gospel Hymns, nos. 5 and 6 Combined, Breiver Edition* (words only). All of the titles are in fragile condition with one or more of the following issues: loose text blocks (mostly folios), torn covers, and brittle pages. Of these titles, four have fewer than five worldwide holdings each, with Haggard's *Gospel Voices No. 3: Revival Songs* being held only in the Gardner-Webb University Archive.

Bacon, George W., and Rev. W. B. Cook. 1919. *Truth and hope, a collection of sacred songs, both new and old, for the church, the Sunday-school, the revival meeting, the singing school, the singing convention, and all kinds of religious work and worship.* Hudson, NC: The Teachers' Music Publishing Co.

Coleman, Robert H., ed. 1926. *The Modern Hymnal: Standard Hymns and Gospel Songs New and Old, for General Use in all Church Services*. Dallas, TX: Robert H. Coleman.

Coleman, Robert H., ed. 1924. *Harvest Hymns: Singable Gospel Songs for General Use in Churches, Schools, Young People's Meetings, and Evangelistic Services*. Dallas, TX: Robert H. Coleman.

Dortch, David E., ed. 1902. *Dortch's Gospel Voices No. 3*. Columbia, TN: The Dortch Publishing Co.

Haggard, A. A., ed. 1900. *Gospel Voices No. 3: Revival Songs*. Gaffney, SC: Rev. A. A. Haggard.

Sankey, Ira D., James McGranahan, and George C. Stebbens, eds. 1895. *Gospel Hymns Nos 1 to 6, Brevier Edition*. Chicago, IL: The Bigalow and Main Co.

Vaughn, John B., ed. 1914. *Heavenly Echoes No 2: For Sunday Schools, singing schools, and social gatherings*. Lawrenceburg, TN: The J. B. Vaugn Co.

Users of the digitized collection span worldwide, with a high concentration in the United States. Figure 8.2 is a readership map of Digital Commons views, North America only, from May 2020 to May 2023.

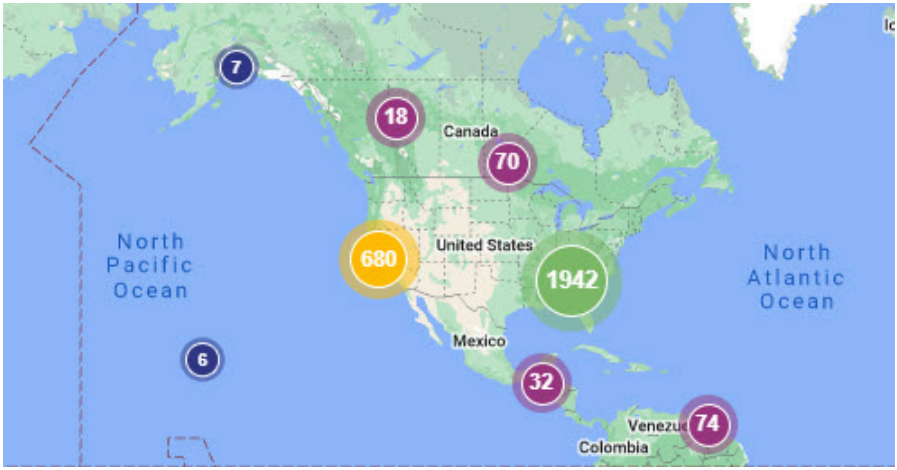

Figure 8.2: Digital Commons readership map

Measured by views and downloads across the Digital Commons and Internet Archive platforms, usage indicates a demand for titles in the collection. As a result, we initiated a second phase of the project in 2023.

Conclusion: What We Learned and What Comes Next

During the course of the project, we encountered three main challenges: developing an efficient and sustainable plan for metadata creation, digitizing materials that were often in fragile condition, and determining how best to release the digitized collection. In the second implementation of the project, we will continue to use the modified template for metadata description but will also include short notes on the condition of the items. These notes will provide a record of the physical fragility of volumes where handling is a concern.

Because so many of these books are in fragile condition, in the second implementation of the project we will create a TIFF image as the master, with JPEG and PDF derivatives. We chose JPEG for the master image in the first implementation for the reasons already described. Because TIFF images are of higher quality, however, we believe this will eliminate the need to re-scan in the future and so reduce long-term physical handling of volumes in poor condition.

The initial project was released in two large batches—the Round-Note Collection and Shape-Note Collection. In the second implementation of the project, we will again identify qualifying titles for digitization based on the qualifiers used during the project development stage. We will also continue to deposit all titles in the Internet Archive, which allows us to take advantage of flipbook integration and exposes collection images to a wider audience.

Since the initial implementation of this project, we have received two gifts of hymnals from alumni who saw the digital collection online. Six of those titles are rare shape-note editions with fewer than five worldwide holdings each. While the publication of new hymnals has stagnated across all major denominations, there has been an increase in the study of hymnody, particularly of unusual features of its history such as the regional use of shape notes. Gardner-Webb University Archives intends to continue implementing digitization projects that preserve shape-note hymnals and songbooks to support future scholarship and a growing shape-note singing community.

References

Goff, James R., Jr. 2002. *Close Harmony: A History of Southern Gospel*. Chapel Hill: University of North Carolina Press.

Kurlansky, Mark. 2016. *Paper: Paging Through History*. New York: W. W. Norton.

Marini, Stephen A. 2003. *Sacred Song in America: Religion, Music, and Public Culture*. Urbana: University of Illinois Press.

Music, David W. 2005. *A Selection of Shape Note Folk Hymns From Southern Tune Books, 1816-1861*. Middleton: A-R Editions.

Additional Resources

CHAPTER 9

Reliable Resources for Further Study and Reference

PRISCILLA ANDERSON AND LAUREN TELEPAK

Theological libraries and archives have attributes that distinguish them from other specialized libraries. In the preservation realm, handling, storage, and display of oversized books, historic textiles, and items embedded with religious meaning and restrictions present particular challenges. For most aspects of preservation, however, general guidance for all libraries, and often for museums and other cultural heritage organizations, still applies. The following short list of annotated resources (online, downloadable, and print formats) ranges from basic advice to state-of-the-art technology and is intended to complement and supplement references provided in the other chapters of this volume. The list is not comprehensive but is curated for staff of theological libraries and archives without easy access to a preservation or collections care professional. The scope is intentionally international, and while all resources are available in English, we note when translations are available.

General Preservation

"Agents of Deterioration." Canadian Conservation Institute, September 26, 2017. *https://www.canada.ca/en/conservation-institute/services/agents-deterioration.html*.

While others have added to and modified these categories, the Canadian Conservation Institute's version of the 10 Agents of Deterioration is still referenced as a simple way to understand the complexity of cultural heritage deterioration. Available in French.

"Care of Objects and Collections." Canadian Conservation Institute, April 5, 2022. *https://www.canada.ca/en/conservation-institute/services/care-objects.html*.

The Canadian Conservation Institute provides discrete leaflets in a series of "Notes" on preservation topics with good information in consumable amounts. Available in French.

"Collections Care." Collections Care (Preservation Directorate, Library of Congress). Accessed June 30, 2023. *https://www.loc.gov/preservation/care/*.

The Library of Congress (US) Preservation Directorate's suite of Collections Care web pages covers many aspects of collections care for library materials, including guidance by format type as well as by collection care activity.

"Conserve O Grams." National Parks Service. Accessed June 27, 2023. *https://www.nps.gov/museum/publications/conserveogram/cons_toc.html*.

The National Park Service (US) maintains a robust series of short technical leaflets called "Conserve O Grams" that focus on general preservation topics as well as format-specific guidance for collections such as fine art, leather, books, and papers. Current versions are PDF downloads only; older versions are in print.

Foot, Mirjam M. *Building a Preservation Policy*. Edited by Caroline Peach. Revised. London: Preservation Advisory Centre, The

British Library, 2013. https://www.bl.uk/britishlibrary/~/media/bl/global/conservation/pdf-guides/building-a-preservation-policy.pdf.

This British Library (UK) resource, first published in 2001, focuses on creating a format-agnostic preservation policy that extends across an entire organization, not solely for the staff or departments focused on collections care. Starting with linking preservation to the mission and goals of the organization and its other units, it then provides a helpful checklist of elements that should be addressed. PDF download.

Hadgraft, Nicholas and Katherine Swift, eds. *Conservation and Preservation in Small Libraries*. Cambridge: Parker Library Publications, Corpus Christi College, 1994.

This classic reference emphasizes conservation treatment but includes a few useful sections on preventive care topics. Of note are two perspectives on physical evidence within manuscripts and printed books and how to avoid damaging or losing that evidence. Print only.

Nevin, Austin, Joyce H. Townsend, Matija Strlič, Nigel Blades, David Thickett, and Jo Kirby Atkinson, eds. *Preventive Conservation: The State of the Art: Contributions to the Turin Congress, 10-14 September 2018*. International Institute for Conservation of Historic Artistic Works, 2018.

As the proceedings of an international conference, this reference is not a comprehensive manual. It provides recent updates on many collections care topics. Print only.

Pedersoli Jr, José Luiz, Catherine Antomarchi, and Stefan Michalski. *Guide to Risk Management in Cultural Heritage.* ICCROM, Canadian Conservation Institute, 2016. https://www.iccrom.org/publication/guide-risk-management.

Using illustrations and exercises, this guide introduces the reader to a methodology for examining and assessing risks to their collections. PDF download. Available in Arabic, Chinese, French, Portuguese, and Spanish.

"Preservation 101: Preservation Basics For Paper And Media Collections." Northeast Document Conservation Center, 2015. *https://www.nedcc.org/pres101*.

Focusing on books, art on paper, and photographs, the Northeast Document Conservation Center (US) offers many free resources, including a free online textbook for self-guided study in the basics of library preservation. They also offer an occasional, fee-based live course.

"Preservation Guides." The British Library, January 10, 2019. *https://www.bl.uk/conservation/guides*.

Index page from the British Library (UK) to a variety of guides on specific preservation topics. PDF downloads.

"Resources." Connecting to Collections Care Online Community, Foundation for Advancement in Conservation, 2021. *https://connectingtocollections.org/resources/*.

Focusing on collections care for small to mid-sized museums and other cultural heritage organizations, Connecting to Collections Care is a website and online community with videos, resources, and a discussion forum. Videos and resources are mostly free, with a fee charged for more in-depth online courses. It is sponsored by the Foundation for Advancement in Conservation (US). Some resources are available in Spanish.

Sustainable Preservation Environments

"Bizot Green Protocol." International Committee for Museums and Collections of Modern Art, 2014. *https://www.cimam.org/sustainability-and-ecology-museum-practice/bizot-green-protocol/*.

In 2014 the Bizot Green Protocol, coordinated by a group of renowned museum directors, issued a dramatically new set of Guiding Principles and Guidelines that revised long-held beliefs in the appropriate use of resources and, particularly, in strict temperature and humidity control in museum settings. While

library collections have not always followed those historically strict settings, it is good to see the sustainability reasons behind this revised approach, as they can inform decisions about library preservation environments as well.

d'Hont, Lieve, Marc Stappers, and Bart Ankersmit. *Managing Indoor Climate Risks*. Cultural Heritage Agency of the Netherlands, 2018. *https://english.cultureelerfgoed.nl/publications/publications/2018/01/01/managing-indoor-climate-risks*.

The publications website of the Cultural Heritage Agency of the Netherlands has many good resources about preservation topics, including this nine-page guide to managing indoor climate risks. PDF download. Available in Dutch.

IPI's Guide to Sustainable Preservation Practices for Managing Storage Environments. Rochester NY: Image Permanence Institute, 2013. *https://s3.cad.rit.edu/ipi-assets/publications/sustainable_preservation_practices/sustainable_preservation_practices_all.pdf*.

IPI's Methodology for: Implementing Sustainable Energy-Saving Strategies in Collections Environments. Rochester NY: Image Permanence Institute, 2017. *https://s3.cad.rit.edu/ipi-assets/publications/methodology_guidebook/methodology_guidebook_all.pdf*.

Funded by the National Endowment for the Humanities (US) and the Institute for Museum and Library Services (US), the Image Permanence Institute (IPI) conducted research and devised strategies to incorporate preservation goals into energy-saving measures for managing temperature and humidity in collection storage environments. These two companion resources cover different approaches and climate zones. The Guide provides more background information and goals, and the Methodology gives more details on how to implement changes. PDF downloads.

Emergency Preparedness and Planning

General

Mcllwaine, John. *IFLA Disaster Preparedness and Planning: A Brief Manual.* Paris: IFLA PAC, 2006. *https://repository.ifla.org/bitstream/123456789/1315/1/ipi6-en.pdf*.

This basic manual from the International Federation of Library Associations and Institutions (IFLA) Core Activity on Preservation and Conservation (PAC) focuses on the main components of writing a disaster plan: assessing risks, preparedness, and response. PDF download. Includes an annotated list of resources in multiple languages.

Disaster Plans

Dorge, Valerie, and Sharon L. Jones. *Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions.* Los Angeles, CA: Getty Conservation Institute, 1999. *http://hdl.handle.net/10020/gci_pubs/emergency_english*.

This guide focuses on a team-based approach to creating an emergency plan. It suggests an organizational structure and outlines the different roles of administrators, emergency preparedness committees, and departmental teams. Prompts and exercises in the text can help define team roles and responsibilities. PDF download. Available in French and Spanish.

"dPlan: ArtsReady—Online Disaster Planning Tool." Northeast Document Conservation Center, 2022. *https://www.nedcc.org/free-resources/disaster-assistance/dplan-artsready*.

Fee-based online tool that takes you through the steps of creating a customized disaster preparedness and response plan for your organization.

"Level of Collections Emergency Scenarios." Library of Congress, May 1, 2009. *https://www.loc.gov/preservation/emergprep/plan/scenarios.html*.

One of the best ways to test your collections emergency response plan is to practice it with your colleagues using a tabletop exercise. Created by the Library of Congress (US), the two documents linked from this webpage provide a variety of tabletop scenarios based on the risk level of an emergency that you can modify to the specifics of your organization. Each tabletop scenario also includes a set of sample talk-through questions to help facilitate conversation during the exercise. PDF downloads.

"Pocket Response Plan™ PReP™ Templates," Council of State Archivists, 2006. *https://www.statearchivists.org/research-resources/emergency-preparedness/pocket-responce-templates*.

The Pocket Response Plan™ (PReP™) is a customizable template that consolidates important information from your disaster plan into a portable document that can fold up to the size of a credit card. The template is not a replacement for your plan but a way to create a concise version with important communication information that emergency team members can easily access. Note that the typo ("responce") is part of the correct URL. PDF download. Available in Portuguese and Spanish.

Risk Assessment

"Risk Evaluation and Planning Program (REPP)." Foundation For Advancement in Conservation, August 19, 2015; updated April 30, 2015. *https://www.culturalheritage.org/resources/emergencies/risk-evaluation-and-planning-program*.

Resource created by the Foundation for Advancement in Conservation (US) and the Risk Evaluation and Planning Program that includes tools to help evaluate potential risks to your collections. These include a building walk-through checklist, a risk prioritization worksheet, and a set of one-page

summary documents with basic preparedness information and tips for developing an emergency plan and implementing mitigation measures. PDF and XLS downloads.

"Risk Management." Library of Congress. Accessed June 27, 2023. https://www.loc.gov/preservation/emergprep/insurancemain.html.

Library of Congress (US) resource that briefly reviews how to identify risks as well as how to minimize, spread, and transfer some of the costs of risks to a collection with insurance. Includes links to information about insurance valuation and other insurance resources available in the United States.

Mold and Pest Management

Brokerhof, Agnes W., Bert van Zanen and Arnold den Teuling. *Fluffy Stuff: Integrated Control of Mould in Archives*. Amsterdam: Netherlands Institute for Cultural Heritage (ICN), 2007. https://english.cultureelerfgoed.nl/binaries/cultureelerfgoed-en/documenten/publications/1999/01/01/fluffy-stuff-integrated-control-of-mould-in-archives/Fluffy-Stuff-integrated-pest-management-in-collections.pdf.

A concise guide to preventing and treating mold on paper-based collections. PDF download. 1999 print version available in Dutch.

Insects Limited. Accessed June 30, 2023. https://www.insectslimited.com/.

This commercial website is a treasure trove of helpful information for identification, prevention, and treatment of specific pests. The company sells specialized pest control products and services, and its advice understandably leans toward those solutions. That said, they contribute a lot of knowledge and expertise to the public. Free access to online information and PDF downloads; services and products for purchase.

"Integrated Pest Management for Cultural Heritage." Accessed June 30, 2023. *https://museumpests.net/*.

Interactive website that helps people of all skill levels to identify pests and the strategies to reduce/eliminate them from buildings and collections. While many of the strategies focus on prevention using low- or no-chemical means, a few of the more aggressive strategies require a licensed professional to execute. The site provides instant translation into multiple languages.

Pinniger, David. *Managing Pests in Paper Based Collections*. London: Preservation Advisory Centre, British Library, 2021. *https://www.bl.uk/britishlibrary/~/media/bl/global/conservation/pdf-guides/managing-pests-in-paper-based-collections-guide.pdf*.

Concise guide to pest management specifically for libraries and archives. PDF download. Available in Spanish.

Ryder, Suzanne, Amy Crossman, Robert Child, and Institute of Conservation, eds. *Integrated Pest Management for Collections: Proceedings of 2021: A Pest Odyssey, The Next Generation*. London: Archetype Publications, 2022.

The technical papers in this Institute of Conservation (UK) conference proceedings represent state-of-the-art pest management in 2021. Perspectives emphasizing the importance of staff attitudes, training, working conditions, and relationships build the success of an integrated pest management program. Print only.

Handling, Transport, and Packing

"Courier Decision Tool." Association of Registrars and Collections Specialists, August 2021. *https://www.arcsinfo.org/content/documents/arcs_couriertree_full_d8.pdf*.

This publication provides the perspective of registrars on the questions of whether, when, and how to request/provide courier services to accompany collections in transit, both in person and remotely. PDF download.

"Preparation, Art Handling, Collections Care Information Network." PACCIN. Accessed June 30, 2023. https://www.paccin.org/content.php.

This online resource contains articles and links to other resources curated by museum preparators, collection managers, and other collection care professionals. The best information focuses primarily on preparing collections for exhibition and packing them for transport. Access to the articles is free. If you want to join the online community to post your own information, you will need to join the group for a fee.

Using Library and Archive Collections. Second Edition. London: British Library, Preservation Advisory Centre, 2013. https://www.bl.uk/britishlibrary/~/media/bl/global/conservation/pdf-guides/handling-library-and-archive-collections.pdf.

While there are no how-to illustrations in this guide, it contains good and detailed information on how to handle various types of library and archive collections with recommendations for reading room policies. PDF download.

Storage and Enclosures

Elkin, Lisa, and Christopher A. Norris, eds. *Preventive Conservation: Collection Storage.* New York, NY: Society for the Preservation of Natural History Collections, 2019.

This 944-page tome addresses collection storage as the fundamental strategy for preserving collections. Focusing on a risk-assessment approach to preventing damage that includes multiple stakeholders and decision-makers in the organization, much of the information is broadly applicable to all collection types, including libraries and archives. Print only.

"Re-Org—Collection Storage Reorganization." ICCROM. Accessed June 30, 2023. https://www.iccrom.org/programmes/re-org.

This website, created by the International Centre for the Study of the Preservation and Restoration of Cultural Property,

provides an entry point for a method of re-organizing collection storage spaces. Focused mainly on museums, there is still useful information for libraries. Available in Arabic, French, Italian, and Spanish.

"STASHc (Storage Techniques for Art, Science & History Collections)." Foundation of the American Institute for Conservation. Accessed June 30, 2023. https://stashc.com/.

Started and maintained by the Foundation of the American Institute for Conservation of Historic and Artistic Works, this website contains articles by various collection care professionals on solutions to challenges related to storage and protective enclosures for many types of collections and storage configurations. While the style of the articles varies, the content is innovative and cost-conscious.

Sound Recordings

Brylawski, Samuel, Maya Lerman, Robin Pike, and Kathlin Smith, eds. *ARSC Guide to Audio Preservation*. CLIR Publication No. 164. Eugene, OR: Association for Recorded Sound Collections / Washington, DC: Council on Library and Information Resources / Washington, DC: National Recording Preservation Board of the Library of Congress, 2015. https://www.clir.org/pubs/reports/pub164/.

Industry-accepted reference on the preservation of audio collections by the Association for Recorded Sound Collections. The editors' stated purpose is "to help public and private institutions, as well as individual collectors, that have sound recordings in their collections but lack the professional expertise in one or more areas to preserve them." PDF download. Print version is no longer available for purchase but may be borrowed from other libraries.

"IASA Special and Technical Publications." International Association of Sound and Audiovisual Archives.

Accessed July 1, 2023. https://www.iasa-web.org/iasa-special-and-technical-publications.

These technical publications from IASA outline preservation strategies for audiovisual materials. Include general strategies and principles as well as guidelines for handling and storage of materials and the production of digital surrogates. PDF downloads. Some editions are available in multiple languages.

Electronic and Born-Digital Media

General

Iraci, Joe. *Electronic Media Collections Care for Small Museums and Archives.* Ottawa: Canadian Conservation Institute, 2020. https://www.canada.ca/en/conservation-institute/services/care-objects/electronic-media/electronic-media-collections-small-museums-archives.html.

A readable and succinct yet thorough guide to preservation of electronic media. Available in French.

Redwine, Gabriela, Megan Barnard, Kate Donovan, Erika Farr, Michael Forstrom, William M. Hansen, Jeremy Leighton John, Nancy Kuhl, Seth Shaw, and Susan Thomas. *Born Digital: Guidance for Donors, Dealers, and Archival Repositories*. Washington, DC: Council on Library and Information Resources, 2013. https://www.clir.org/pubs/reports/pub159/.

While somewhat dated in terms of the formats and software mentioned, this resource is helpful for the perspective it provides for various stakeholders, including dealers and donors as well as archives staff. PDF download. Available in Japanese.

"The Bitlist 2022: the Global List of Digitally Endangered Species." Scotland: Digital Preservation Coalition, November 2023. *https://www.dpconline.org/docs/miscellaneous/our-work/bitlist/2790-bitlist2022/file*.

The Digital Preservation Coalition (UK) presents a thorough list of digital media types that are assigned one of six levels of risk in support of creating priorities for digital preservation. PDF download.

"Digital Preservation Handbook." Digital Preservation Coalition. Accessed July 1, 2023. *https://www.dpconline.org/handbook*.

Written for a wide audience, providing both an overview and detailed technical instructions. Available on the website and as a PDF download. Available in French and Italian.

"Levels of Digital Preservation." National Digital Stewardship Alliance. 2019. *https://ndsa.org/publications/levels-of-digital-preservation/*.

This matrix from the National Digital Stewardship Alliance (US) is an award-winning at-a-glance summary of four levels of preservation (increasingly rigorous) with the functional areas needing attention for each level.

"Preservation Guidelines for Digitizing Library Materials." Library of Congress. Accessed June 29, 2023. *https://www.loc.gov/preservation/care/scan.html*.

The Library of Congress (US) provides a succinct, non-technical guide to selecting and preparing library materials for digitization. It does not contain specifications for the digitization process itself.

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The Theological Librarian's Handbook is a multi-volume guide to the practice of theological librarianship. It is intended for use by library staff at theological and religious studies libraries who do not possess professional training in the field of library and information science. This handbook offers perspectives and advice from leading experts in the field and best practices from theological libraries all over the world.

This volume introduces readers to the most important principles and practices for preserving library and archival collections. Through a combination of informational chapters and case studies, authors provide clear and practical advice on:

Maximizing the longevity of physical materials that librarians and archivists commonly collect

Maintaining appropriate levels of temperature and humidity for the storage of materials

Implementing simple, affordable practices and preventive measures to protect collections and stay prepared for emergencies

Responding to a specific preservation challenge, such as a mold outbreak

Digitizing print materials and how this relates to preserving originals

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