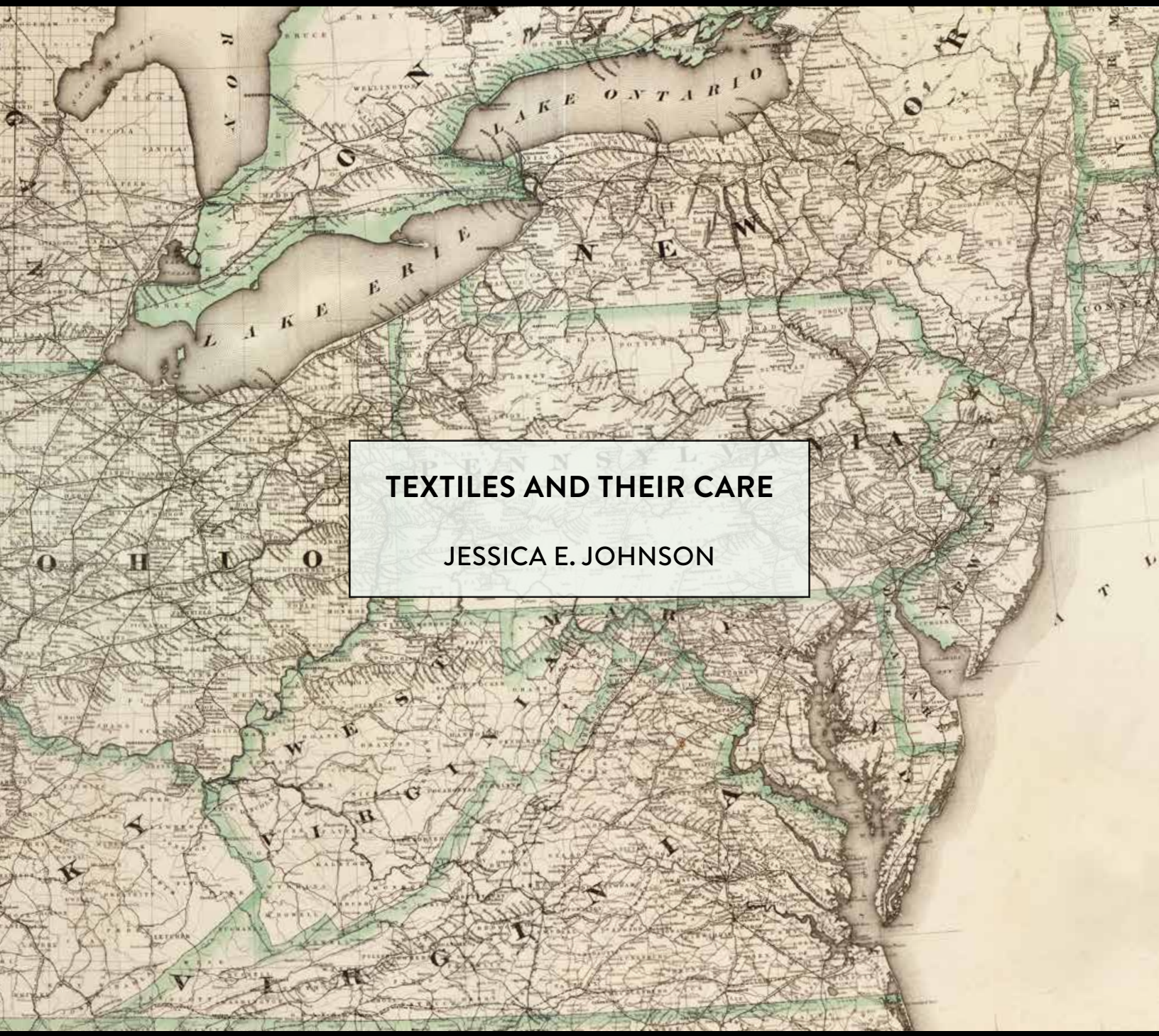
The Practical Archivist

MARAC TECHNICAL LEAFLET SERIES
No. 17 | SPRING & SUMMER 2025

DELAWARE • DISTRICT OF COLUMBIA • MARYLAND • NEW JERSEY • NEW YORK • PENNSYLVANIA • VIRGINIA • WEST VIRGINIA



TEXTILES AND THEIR CARE

JESSICA E. JOHNSON

General Information

The Practical Archivist: MARAC Technical Leaflet Series (eISSN: 2834-3867) is a double-blind, peer-reviewed publication consisting of member-authored guides, which provide practical instruction for specific archival tasks not commonly addressed in the professional literature. The entire run of the publication—from 1989 to the present—including content published with its previous title, *MARAC Technical Leaflet Series*, is online at www.marac.info/the-practical-archivist.

About the Cover

Each issue of *The Practical Archivist* features a portion of the following map, courtesy of the Library of Congress Geography and Map Division: G.W. & C.B. Colton & Co, and Pennsylvania Railroad. *Railroad map of Pennsylvania Company showing the Pennsylvania Railroad, Pittsburgh, Fort Wayne and Chicago Railway, Pittsburgh, Cincinnati and St. Louis Railway, and their connecting eastern and western lines.* New York, 1871. Map. https://www.loc.gov/item/98688764.

The Practical Archivist: MARAC Technical Leaflet Series

No. 17, Spring & Summer 2025
eISSN: 2834-3867
marac.info/the-practical-archivist

Layout and design for *The Practical Archivist* is provided by Krista Hanley, Associate Director of Design & Print Services, at the Dickinson College Print Center.

Abstract

Textiles can be found in many special collections and archives, though often archivists do not have experience with handling and caring for them. Textile care can seem daunting to those unfamiliar with it, but a simplified starting point can be found without completely reinventing institutional practices. Archivists can accession, process, and, in many cases, store textiles similarly to how they handle paper collections. Display, preservation, pest control, and cleaning can be more complicated than with paper, though achievable for any archives. This guide introduces ways to address accessioning, storage, display, and cleaning of textiles, as well as an overview of some of the most common fibers and fabrics and their construction, and the most common pests and pest treatments that are encountered. With a good understanding of the basics and a solid foundation to build on, institutions and archivists can preserve their textile collections competently no matter their budget or staffing levels.

Table of Contents

Introduction

Many archival repositories find themselves in possession of non-paper-based collection materials. This often includes textiles, whether in the form of flags, quilts, clothing, personal accessories, or other objects. Often, staff who are trained to primarily work with paper-based collections have little knowledge of how to handle textiles for preservation purposes. This technical leaflet is a starter guide for those who find themselves in that situation. While it is not comprehensive for all situations or all types of textiles and fibers, it should be enough to help practitioners understand basic accessioning, description, handling, and display procedures for textiles and fibers. It will also alert archivists to potential hazards, offer advice on when it may be necessary to contact a specialist, and serve as a guide for beginning an Integrated Pest Management (IPM) approach that considers the unique issues textiles can face. Every repository's situation is different in terms of resources regarding buildings, storage and display space, funding, staffing, and time. Below archivists will find what are considered "best practices," but do not worry if it is impractical to follow everything to the letter. Implementing as many practices as possible in one's repository or situation is valuable, even if only a few things at a time can be addressed. After all, doing something is better than doing nothing; and slowly fixing problem areas to the best of one's ability is a step in the right direction!

A Crash Course on Fibers, Production, and Fabric Types

All textiles are created from fibers. There are many different types of fiber sources, manufacture, and end-result fabrics.

Fiber Sources

Natural Fibers (Animal-Based Proteins)

- **Wool/Animal Fleece** is a soft, warm fiber. It will most likely come from the fleece of sheep, llamas, alpacas, or goats. Raw fiber is spun or blended with other materials to create yarn or thread that is then woven, knit, or otherwise worked into fabric.
- **Silk** is a smooth and strong fiber when woven into fabric. It comes from silkworm cocoons.
- **Leather** is made from chemically treating (tanning) the skins and hides of mammals, birds, and reptiles. Leather has unique textures, earthy scents, and absorbs water if untreated. It can be firm or supple depending on its finishing.
- **Animal Fur and Feathers** are usually found as an accent or accessory to larger items, such as collars, cuffs, decorations, and hats. They can create a larger textile as well, such as a fur coat or blanket, or a garment completely trimmed in feathers.

Natural Fibers (Plant-Based or Cellulose)

- **Cotton** is a lightweight and absorbent fiber. It comes from the cotton bush, where small white bolls (fruit of the plant) are picked, processed, and turned into yarn, thread, or string. The yarn is then woven or knit into fabric, while thread is used for sewing.
- **Rayon and Acetate** are created from wood pulp. Rayon is soft, lightweight and absorbent, though weak when wet; acetate is lustrous.
- **Linen** is made from the flax plant. Fibers are harvested, prepared for spinning, and spun into longer threads. These fibers can then be woven into fabric. It is most commonly thought of as a lightweight summer fabric that can have a rougher feel than cotton. However, as it softens with every wash, do not identify linen by feel alone.
- **Modal** is a soft and lightweight fabric made from the beech tree.

Synthetic Fibers

- **Nylon, Polyester, and Spandex** are made from petroleum products. They are all lightweight and strong. Spandex is elastic; nylon and polyester are more durable and dry quickly.

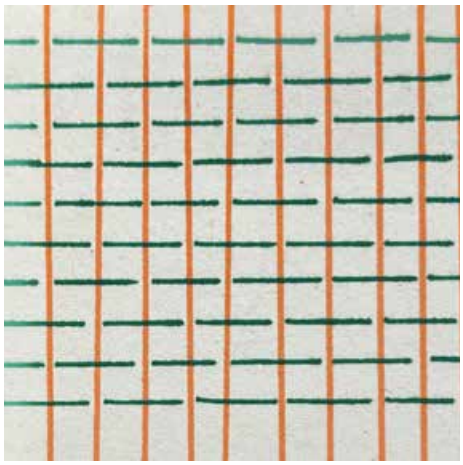


FIGURE 1. This image shows a plain weave with alternating warps (orange-yellow) and wefts (green) in an up-and-down pattern.

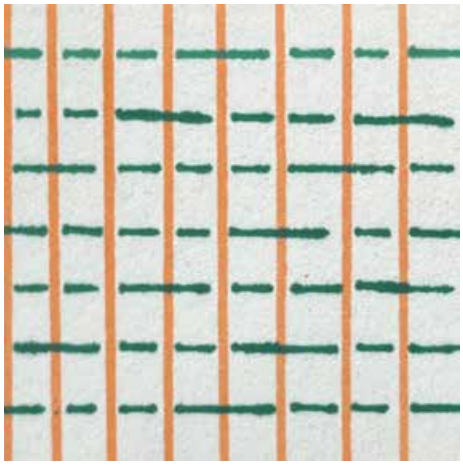


FIGURE 2. This shows the warps (orange-yellow) "floating" over multiple wefts (green).

FIGURE 3. This illustrates twill with alternating warps (orange-yellow) with the wefts (green) at diagonal angles to each other.

From Fiber to Fabric: Types of Manufacture

Fibers are made into fabrics. These can be single-source fabrics, in which the whole item is made from one type of fiber, or blends of multiple types of fibers (e.g., cotton-silk, poly-cotton, or wool-nylon blends). The sources, blends, and construction of the finished fabric determine the feel, drape, or durability of the fabric depending on the needs of the end product. Fabrics can be woven (two or more fibers interwoven together on a loom), knitted (interlacing loops of yarn with knitting needles, a crochet hook, or a knitting machine), and non-woven (e.g., felt).

Weaves

- **Plain Weave** is the most basic weave, where the threads cross at right angles, forming a crisscross or hatched pattern *(see Figure 1)*. It is strong, durable, and smooth. Types of fabric with a plain weave include chiffon, organza, taffeta, cambric, and muslin.
- **Satin** is a weave involving "floats" of yarn, where the weft "skips" a number of warps to create a glossy sheen or luster *(see Figure 2)*. It is most commonly used to create satin or sateen fabrics.

Weaves are made of warps (stationary vertical yarns or threads held on a loom) and wefts (yarns or threads drawn over and under the warp yarns horizontally). This process can be accomplished in multiple ways to create different weave patterns and fabrics.

- **Twill** is a diagonal weave made on a loom *(see Figure 3)*. There is typically a front and a back side, unlike a plain weave, though there is not an "up" or a "down." Sheer or printed fabrics are unlikely to be made with a twill weave. Because of its durability and the fact that stains and soiling are less noticeable on this weave, it is often used for heavier fabrics like denim, serge, or upholstery fabrics, though it can be a lighter fabric as well. Historically, twill was favored for garments because of its superior draping qualities.
- **Velvet** is woven on a special loom and then cut in a way that creates its characteristic soft pile. It was traditionally made from silk, but with modern production methods, it can be made from almost any fiber. While most people think of velvet as a type of fabric, it actually refers to the weave of the cloth; thus, velvet can be made from any fiber.

Non-Woven Modes of Production

- **Braiding/plaiting** is a method where three or more threads or yarns are interwoven to create a cloth.
- **Knotting** involves tying threads together to create a fabric and pattern. It is used in tatting, netting, and macramé.
- **Lace** is made by interlocking threads to create a fine fabric with open holes in the work. It can be machine made or created by hand (needle or bobbin lace). Lace was originally made with linen, silk, gold, or silver threads, and is now also made with cotton threads. Much of the modern machine-made lace is made of synthetic fibers.
- **Knitting** involves interlacing loops of yarn with knitting needles to create a fabric. Multiple loop stitches are active at once; a stitch loop is drawn up from the working yarn or thread and passed through, replacing the active stitches on the needles. It can be done by hand or by machine.
- **Crochet** is similar to knitting, but unlike knitting, a machine cannot produce crocheted fabric. Traditional crochet involves one active stitch on a crochet hook with the working yarn or thread being pulled through the stitch loop to create a fabric.

This is not intended to be an exhaustive list of textiles, but rather a summary of the textiles archivists are most likely to encounter in collections. It can be difficult to identify different textiles without a microscope, chemical testing, and other often invasive means. This list will help narrow down the options without the need to hire a professional service.

- **Nålebinding** is a precursor to knitting that passes the full length of the working thread through each stitch loop, unlike knitting or crochet, which is made only of loops and never the free end. One is unlikely to come across nålebinding now, though it is common in collections of Coptic textile fragments. Many of the oldest fabrics are made with this technique.
- **Felting** is produced by matting, condensing, and pressing fibers together. It can be made from wool, animal fur, or synthetic fibers. Plant-based fibers are unlikely to felt.

Fabric Types

Once the fiber content and the mode of production have been determined to the best of one's ability, it is possible to classify the type of fabric from which a textile is made. Below are some of the major types of fabrics that practitioners are likely to encounter in a collection.

Plain-Woven Fabrics

- **Muslin** has a loose, plain weave, creating a lightweight, non-stretchy, breathable fabric. It is typically made from cotton and is often dyed in many solid colors. While the lightweight version of muslin is the most common, it comes in different weights that are used for various purposes. Historic muslin is different from modern muslin. Historically, muslin was very lightweight and almost sheer, while muslins produced today are usually opaque and heavier. Archival practitioners will most likely encounter muslin in summer clothing and household goods such as pillow covers and quilts.
- **Poplin** is another plain-woven fabric. It is a tightly woven medium weight fabric that resists wrinkles and has a smooth, slightly glossy surface. It has a much finer and softer feel than cotton twill. Practitioners are most likely to encounter poplin made from 100 percent cotton, usually in shirts, dresses, and home décor—items that require a crisp fabric that holds its shape.
- **Calico**, originating in India, is another plain-woven fabric similar to muslin. It is not bleached or dyed, so it generally has a cream or off-white appearance and always has a printed design. Calico used to be a hand-woven fabric with a more rustic texture, but modern manufacturing since the nineteenth century gives it a smoother finish than the oldest calicos. Calico was initially used for home linens, but its versatility, durability, and relatively inexpensive cost eventually made it a desirable clothing fabric.
- **Broadcloth** is a dense, plain-woven fabric without a sheen. Though historically made of wool, it can be made from many fiber bases. It is difficult or impossible to see the weave pattern on the surface of the cloth. Manufacturers use broadcloth for sporting costumes such as riding habits and hunting jackets; outer layers such as capes and overcoats; military uniforms; and clothing that needs to be warm, durable, and weather-resistant. Upholsterers also use broadcloth. There is a modern version of broadcloth made from cotton that is similar to muslin in appearance and texture, though a slightly heavier fabric weight. It is used for quilting and clothing. Serge is comparable to broadcloth in its feel and uses.
- **Hessian**, also known as burlap, is a coarse fabric made from sisal or jute plants. It is rarely used in modern clothing manufacturing, though if a collection has religious clothing, such as "hair shirts" or homemade clothing from the Great Depression, archivists may find it. Hessian is more commonly used to store goods like coffee beans, tea, grains, raw fibers, or tobacco. One may also encounter it as a backing for linoleum, rugs, and carpets, particularly in items from the nineteenth century. It is often used in its natural, unbleached state (light brown), but it can be bleached and dyed. Natural hessian is biodegradable and begins to break down quickly. Treated burlap lasts much longer, but the chemicals used on it can change the texture and make it sticky over time.

Non-Plain-Woven Fabrics

- **Bombazine** is a twill-woven fabric traditionally made of silk or a silk-wool blend. It is a light to medium weight fabric with a slight sheen. It can be made in various colors, but the most common is black as it was the traditional fabric for mourning clothes starting in the sixteenth century. Bombazine was particularly common during the nineteenth century. In the twentieth century, it fell out of fashion but is still used in upholstery, most notably to line caskets.
- **Brocade** is a heavy but delicate, highly decorative fabric, traditionally made with silk and gold and silver threads. Modern versions use these fine materials but also use cotton or synthetic fibers to create elaborate illustrative designs in the fabric. The patterns are reminiscent of embroidered designs, but they are woven into the fabric during manufacture on a loom. The purpose of the fabric is to show off these designs rather than the texture of the finished fabric. These designs are multicolored and intricate and can be composed of almost any type of motif. The intense manufacturing process and luxe materials made it most common in clothing, draperies, and upholstery for the wealthy.
- **Jacquard** is similar to brocade, but the design is usually flat rather than raised; and the fabric can be woven so that it is reversible. Additionally, Jacquard specifically refers to fabric woven on a Jacquard loom, rather than the design, texture, or raw materials used. It came into existence during the early 1800s. If it is not woven to be reversible, it can be identified by its long "floats" of threads on the reverse of the fabric.
- **Damask** is also similar to brocade, though it has more in common with Jacquard as it is woven on a Jacquard loom and is reversible. It can be identified by its satin weave—a shiny motif on a matte background usually made of a single color of yarn. While brocade and Jacquard are used for both furnishings and clothing, today damask is typically used solely for upholstery, drapery, or table linens, though historically it was also used for garments.
- **Satin and Sateen** are made using the satin weave. Satin was once made exclusively of silk thread but is now made primarily of polyester or nylon. Sateen is the same as satin but made with cotton. Clothing commonly made with satin and sateen includes lingerie, blouses, evening gowns, and neckties. It is also used for interior furnishing fabrics such as bedsheets, table linens, and casket linings.

Non-Woven Fabrics

- **Leather** is most often made from the chemically processed skin of mammals and reptiles. It is used for items that need to be hardy—boots, jackets and protective gear, purses and wallets, and hats. One may also encounter leather in home furnishings, covering couches and chairs, ottomans, and headboards. Leather often has imperfections and obtains a patina over time, making each piece unique.
- **Knits** are often identified by their stitches in which a "v" of interlocked threads is visible. There may also be rows of "bumps" depending on the knit pattern. Knits can have decorative elements such as raised "nubs" or bobbles, raised crisscrossing designs called "cables," or different colored yarns to create images in the fabric. Knit fabrics can be solid or light, airy, and lacy, and made of natural or synthetic fibers.

2024.001.a-f:
WWII Army Nursing Uniform

a: Blouse
b: Skirt
c: Jacket
d: Stocking
e: Stocking
f: Belt

FIGURE 4. This illustrates a single accession with a lettered inventory. It consists of parts comprising the accession in the YYY.NNN(.LLL) format.

2024.001:
WWII Army Nursing Uniform

o 2024.001.001: Blouse
o 2024.001.002: Skirt
o 2024.001.003: Jacket
o 2024.001.004.a-b: Stockings
o 2024.001.005: Belt

FIGURE 5. This shows individual accessions that are linked back to the main accession of 2024.001. Individual items are then listed as component parts in the YYY.NNN(.PPP)/(.LLL) format.

2024.001:
Jane Smith Collection

2021.001.001: Jane Smith Papers
2024.001.002 a-f: WWII Army Nursing Uniform

FIGURE 6. This illustrates an accession with separate component parts: paper records and textile artifacts tied back to the Jane Smith Collection in the YYY.CCC.NNN(.LLL) format.

Accessioning and Description

Accessioning

Accessioning textiles into a collection does not need to be complicated. Be sure to have a consistent location where control and accession information is kept. Some repositories use specialized software, a Content Management System (CMS), which has multiple sections for inputting various aspects of descriptive metadata and control information, while other institutions use a physical ledger or file system to maintain this information. Content Management Systems need not be complicated or expensive. A notebook, ledger, or spreadsheet can work just as well as a commercially available proprietary CMS (such as ArchivesSpace or PastPerfect). Whatever system is used, it is important to be consistent in its use and to record the pertinent information. Archival practitioners can accession textiles like manuscript collections, though it may be easier to treat them like artifacts and use a separate accessioning system. This allows for item-level accessioning as well as control over each item versus at the collection level. If an institution does not have a preferred way to accession artifacts, it is a good idea to create a uniform standard for adding new artifact accessions.

For example, a straightforward way to assign accession numbers to artifacts is by using the YYYY.NNN(.PPP)(/.LLL) format, indicating the year of accession, the number of the item, and the component parts if needed—"PPP" for numerical indicators and "LLL" for alphabetical indicators *(see Figure 4)*. Generally, a number is used to indicate discrete component parts of a larger item that can, in theory, work on its own (i.e., a blouse, quilt, or tablecloth). Letters are used to indicate component parts that require other parts to work (i.e., a pair of socks, a set of drapes, or a set of napkins). So, a textile can have numbered component parts that then have letters YYYY.NNN(.PPP)(.LLL) to indicate a set. Using this numbering system, 2024.001.01-03 indicates that this item is the first item accessioned in 2024, and it has three component parts. Items with multiple parts can have one accession record with a notation that there are x number of component parts, or they can each have their own accession record, depending on institutional practices. Again, whatever system and method is chosen, it is vital to be consistent.

Within a larger collection, items can also be accessioned as individual items; for example, YYYY.CCC.NNN(.PPP)/(.LLL), with "C" indicating the collection number *(see Figure 5)*. This accession should be linked back to the overarching collection as a component accession. If it is easier for a repository, each item can be individually accessioned, even if it is part of a larger whole (linen set, uniform, unfinished quilt), with a note indicating that accessions 2024.001–2024.010 create a set.

Finally, textiles can be a discrete series in a processed collection, though this may give archival practitioners less intellectual or physical control over the materials in the future should they be stored separately, loaned out, or put on display *(see Figure 6)*. It is not always possible to know if a textile was part of a set, or even what the textile originally was. When identification, provenance, or other questions arise, identify items to the best of one's ability and make a note if identification of an item is unclear or uncertain. While there are many different options for accessioning conventions, it is more important to use one consistently than which one is used.

The textile's name should be short but descriptive enough to understand what the item is. "Flag" is not as descriptive as "California Flag." This is particularly important when naming accessions in repositories with multiple identical or similar items. As seen in *Figure 7*, "Nursing Uniform" or "Quilt" is less helpful than a name that offers details like the place of use or the creator (i.e., "Memorial Hospital Nursing Uniform" or "Jane Smith's Flying Geese Quilt"). Further detail and information can and should be added to a repository's record to describe items. The "Nomenclature for Museum Cataloging," a free online resource, is a useful tool to narrow down and standardize naming practices.[1] It is also helpful when determining what exactly an object is. If it is not possible to identify what the item is, describe it succinctly (i.e.,

Title	Found in	Identifier	Dates
Nursing Uniform		2004-2-3	Circa 1970
Nursing Uniform		2004-2-4	Circa 1972
Nursing Uniform		2004-2-5	Circa 1986
Nursing Uniform		2004-2-9	Circa 1980
Nursing Uniform		2005-3	Circa 1982
Nursing Uniform		1988-52-3	
Nursing Uniform		2018-3-2	between 1967 and 1979
Ambulance Surgeon's Uniform		1984-17-1	Circa 1910

FIGURE 7. A plethora of "Nursing Uniform" accessions, with the more descriptive "Ambulance Surgeon's Uniform."

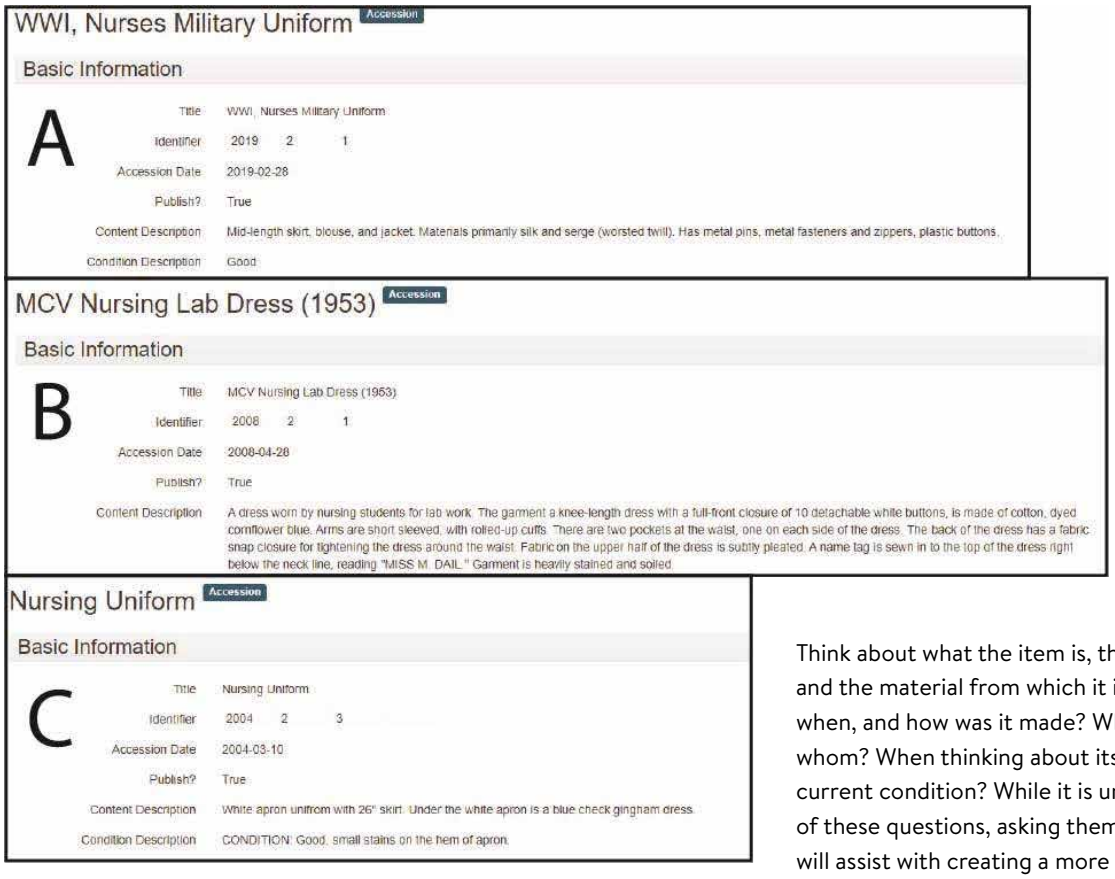


FIGURE 8. For comparison, the above images show a minimally described textile (C), a better described textile (A), and a properly described textile (B).

"Green Wool Serge Fabric Square"). It is also acceptable to put a question mark or the word "tentative" in the names of items when the description or identification of an item is uncertain.

Description

When describing textiles, it is better to have more information than not enough. Describe an item as completely as possible. For example, describe a nursing uniform as a

> "White cotton uniform apron with a 23-inch skirt, circa 1980. Under the white apron is a blue striped dress made of 75 percent polyester and 25 percent cotton. A patch on the left reads 'Regional Medical Center School of Nursing, Metropolis, State, SRMC.' Condition is good, with some expected wear and staining around the collar. Item donated by Mrs. Jane Smith of Smallville."

Think about what the item is, the color, the size and dimensions, and the material from which it is made. Is its use known? Where, when, and how was it made? Where and when was it used and by whom? When thinking about its condition, why is it assessed at its current condition? While it is unlikely for one to have answers to all of these questions, asking them and answering as many as possible will assist with creating a more complete and helpful description of a textile (*see Figure 8).*

If one's institution uses a system that allows photographs to be added, keeping a printed or digital photograph with the accession record or control information is helpful for reminding staff what a specific item is before looking through boxes. With both description and naming, identification of what the item *is* (i.e., quilt, blouse, embroidered seat cushion) is less important than *its materiality.* As much as possible, identify things like the fiber makeup, size, shape, condition, manufacture, etc. that will help determine how the item should be stored, displayed, and preserved. A cotton quilt and a cotton blouse are stored similarly, while a neoprene wetsuit needs different considerations.

A Word on Condition Reporting

Condition reporting is an integral part of textile care. It allows archival practitioners to monitor any ongoing issues with materials in a collection and to indicate items appropriate for display,

FIGURE 9. An identification tab looped through a buttonhole on a 1970s polyester dress.

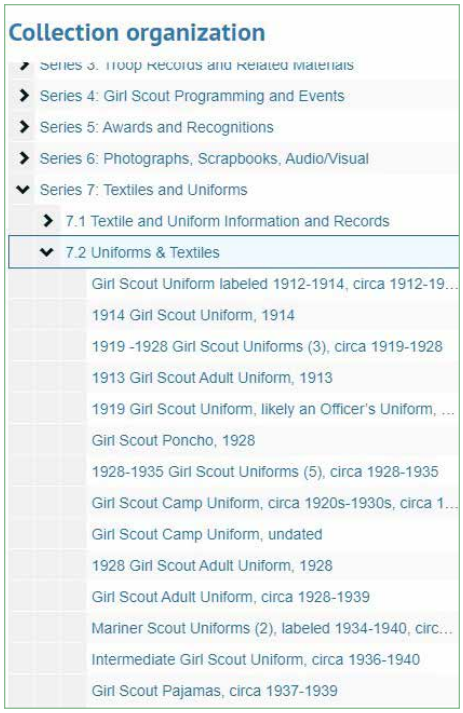


FIGURE 10. The series configuration of a collection, with Series 7.2 expanded to illustrate how textiles are listed.

loan, or conservation. Condition reports can be a narrative or a combination of written, drawn, and/or photographic evidence. Make addenda to condition reports each time an item is removed from or returned to long-term storage for exhibit, loan, or conservation, or if an item is ever damaged or altered during routine handling or research use. When making these reports there are many things to consider, including the following:

- Is the item complete? Is anything missing? For instance, buttons, belt loops, embellishments? Are there items that exist but are now detached?
- Is it broken? Is it ripped or torn? Are there snags, holes, or runs? If the item includes materials that could be cracked or scratched, are those issues present?
- How dirty is the item? Is the cleanliness, or lack thereof, due to the nature of use for the item, or could it become dirty while in storage? Is there anything foreign stuck to the item that should not be there?
- Is there mold, or anything that looks like mold? How extensive is it? If it is mold, is it active or inactive?
- Is there evidence of insect infestation? Things like holes, chewed areas, dead bugs or parts of dead bugs, cocoons, egg sacs, webbing, or droppings? Check under seams, crevices, and flaps where bugs like to hide[2].

Note what is present but also what is *not* present to provide a baseline of information for comparing any changes that may occur. Thinking about these things and noting them makes it less likely that one will ask the question—"Has this always been like that?"—in the future.

Tags and Labels

Attach tags in a way that will disturb the item the least. Common ways to attach tags with minimal disruption include looping them through a buttonhole, zipper, or loop of material on textiles that are robust enough to handle it. Labels, particularly ones that are sewn on, are best attached to a seam allowance, hem, facing, or lining *(see Figure 9)*. Attaching the tag with a Plastiklip, bulb-style safety pin, or stitching with white or unbleached cotton thread may be appropriate on less robust textiles. If using a bulb-style safety pin or sewing to attach the label, insert the pin or needle between threads in the weave and interweave it through the fabric rather than piercing the threads or fibers. For items in boxes, it is useful to have a printed inventory with photographs included in the box, an exterior label, and a label on each item. For fragile items or items that need stabilization, add the accession number only to the box rather than trying to find a way to attach the label to the item itself. If the item is fragile enough that this is the best course of action, storing it in its own discreet box is advisable to minimize potential additional damage from storing it with other items. Track the box location in a ledger, spreadsheet, or Content Management System, and keep locations up to date and available to those who need access to the boxes.

Access

Once textiles have been accessioned, labeled, and described, practitioners can make them available to the public. This can be done through a traditional finding aid. Or, if one's repository is using a CMS, one may choose to make the relevant parts of an accession record public. In a finding aid, treat textiles similarly to other manuscripts, creating a series and putting the most pertinent information in the series title *(see Figure 10)*. One's institution may choose to further describe the textiles at the item level. Sharing the accession record is another option that saves time if a textile is not part of a larger collection *(see Figure 11)*.

FIGURE 11. A published accession record that researchers can use to investigate and request textile items. It needs further description to indicate the fiber makeup and color.

Handling and Storage

Handling

Handling textiles is similar to handling archival manuscripts or other artifacts as care must be taken to ensure their longevity. The main objective when handling textiles is to protect the fabric and not overstress it by pulling, piercing, stretching, or crushing it or its seams. Archivists, researchers, and anyone handling the objects must wash their hands before handling these materials and avoid putting lotions, perfumes, essential oils, and other substances on their hands before handling textiles. Practitioners should remove jewelry from hands and wrists before beginning work, as these might catch on fibers and create tears, runs, or rips. Also, archival practitioners should avoid wearing larger necklaces and badges, or keys on lanyards, that dangle around the neck. Bare, clean hands are more effective than cotton gloves, because bare hands allow the handler to feel the material and how much it is being affected by the handling process.[3] Handle textiles as little as possible, particularly those that are fragile. Move large, heavy, and fragile items using two or more people and a supportive base. To do this, use a larger piece of fabric (unbleached muslin or canvas is preferable) as a support sling when moving or turning over fragile materials. Lay the sling flat on the ground or worktable and place the textile inside. With one or more people, each at the head and foot of the sling, lift it, and move it to where the textile should be positioned.

Storage

Before sending textiles to permanent storage, it is best to complete a cycle of freezing and vacuuming for any newly received items to remove any pests or other undesirable hitchhikers before introducing the textiles to one's larger collection. (See the *Pests* section in "Environmental Hazards".) Storage of textiles depends on the type of textile, construction, and condition. The hard-and-fast rule across all textile materials is to avoid creating sharp creases and points of stress in the fabrics and their seams. Ultimately, it is up to the person working with the textile to decide whether to hang or box the item. When in doubt, a box is best as hanging can cause stress on the area that is in contact with the hanger and heavy items can stress themselves over time as they hang.

Most archival suppliers such as Hollinger-Metal Edge, University Products, and Gaylord sell materials meant specifically for textile care. Large textile boxes and tubes, tissue paper, vacuums, detergents, hangers, covers, and labels are available at different price points. A quick internet search will also turn up items that may be used for textile care and display, though they are often not archival or preservation quality. The Conservation Center for Art and Historic Artifacts has a webpage on selecting materials for storage and display.

As with paper-based archival collections, textiles should be stored in environmentally stable storage areas. Ideally, store textiles at 60-70 degrees Fahrenheit (15-21 degrees Celsius) with a relative humidity range of 40-55 percent. Avoid extremes; relative humidity levels of below 35 percent or above 65 percent can damage textiles over time. While too-high and too-low relative humidity levels are risky, high relative humidity environments tend to damage textiles at a faster rate and with greater risk of degradation than low relative humidity environments.

Supplies

Most archival suppliers sell large flat boxes and textile boxes *(see Appendix B: Further Resources).* Archival textile boxes are oversized flat boxes with lids that are the same height as the sides

FIGURE 12. Image A (above) shows crowded textiles in dry-cleaning bags and on unpadded wire and plastic hangers. Image B (below) illustrates better spacing and different types of padded hangers. Lighter items are on lightly padded, narrower hangers, while a heavy wool cloak is on a wide, rounded and padded hanger.

FIGURE 13. Image A (above) illustrates a homemade muslin drape, while image B (below) is a commercially purchased canvas cover.

of the box, creating a light-tight enclosure without the possibility of the lid coming loose. Practitioners can also use regular archival flat boxes for single or small pieces in one's textile collections. However, a benefit of textile-specific boxes is their depth of four to eight inches, providing the flexibility to store large or connected items together and allowing enough room for the proper padding.

Tissue Paper Types

- **Buffered Tissue** has calcium carbonate added to it, which means it is alkaline. It is preferred for storing natural non-animal-derived fibers like cotton, linen, cellulose, and many synthetic fabrics. The alkaline properties of the tissue help neutralize any acidity in these materials, or materials that may come into contact with them, helping increase their longevity.
- **Unbuffered Tissue** is pH neutral and is preferred for storing materials derived from protein sources like wool, silk, leather, fur, and other animal sources such as pearl, feather, or shell embellishments. Many of these textile types have a slight acidity to them, and buffered tissue paper may neutralize that acidity to the detriment of the protein-based textiles.

BUFFERED OR UNBUFFERED TISSUE?

If a textile contains unknown dyes or mixed or unknown materials, unbuffered tissue is almost always the safest way to store the textile.

With this knowledge, if a textile contains unknown dyes or mixed or unknown materials, unbuffered tissue is almost always the safest way to store the textile. Additionally, materials wrapped in unbuffered tissue can be stored in a buffered acid-free box, as the unbuffered tissue will create a barrier that will protect the item.

Hanging Items

Most repositories do not have space to keep every textile item folded and housed in textile boxes, so items may have to be hung. Assess items individually to determine if they are appropriate to store on hangers. Light and medium weight items made of robust fabric (such as cotton, wool, and many synthetics) may be good candidates, particularly when it is easy to evenly distribute the item's weight across multiple hanging points. Heavy items are generally not good candidates for hanging storage. Use hangers padded with silk, satin, or muslin surrounding the underlying support structure—the wider, the better—to avoid creating a stress point that will weaken the fabric over time. Practitioners can purchase commercially available padded hangers, or it is possible to make hangers in house if there is any available unbleached cotton or satin *(see Figure 12).*

Avoid using wire, wood, or plastic hangers, and/or hangers that clip to textiles. To give the seams and points the garment is hanging from the most support possible, it is advisable to add extra padding at stress points, such as at shoulders or straps, to create a wider resting place while in storage. Consider adding slight padding with tissue paper in sleeves or busts to help items maintain their shape. Add enough padding to keep the shape but not so much that it pulls the fabric or seams.

Hang items on a rack loosely, with some space between them, to avoid overcrowding and to allow airflow between items. This also makes it possible to view the items more easily. Cover the rack with an unbleached muslin, cotton, or canvas cover that ties or clips closed *(see Figure 13).* Archival practitioners can purchase a cover from an archival supplier, or it is possible to create one with yardage purchased from a local fabric or craft store. A fabric cover helps protect items from dust, pests, light, and mold damage while still allowing for air circulation. Store individual items in similar covers or bags.

FIGURE 14. A properly packed box containing a baseball uniform.

FIGURE 15. A properly padded fold at the shoulder of a wool baseball uniform.

Avoid plastic bags, boxes, or covers because these can off-gas chemicals and/or create a microclimate that can damage the textiles. A microclimate comprises the physical conditions, especially temperature, humidity, pollution, and air movement, within an enclosed space that differs from the surrounding areas. Similarly, if space permits, separate petroleum-based fibers from cellulose and protein fibers as artificial textiles off-gas and can damage natural textiles.

Boxing Items

Place large, heavy, or delicate items in an archival box with tissue paper or unbleached cotton *(see Figure 14)*. Do not keep textiles in dry-cleaning bags, plastic clothes bags, or plastic tote boxes. When folding items for storage in textile boxes, use tissue paper to pad the folds and create a softer fold rather than a sharp one. Soft folds help reduce wrinkles and cause less stress to the fabric. Sharp folds can create a wear point where the fibers will deteriorate and change in appearance faster than fibers in the rest of the textile. Padding the folds helps the item wear more evenly *(see Figure 15)*.

Ideally, there will be one or two textile items or sets per box, depending on the space they take up. Separate the items within a box using a piece of tissue paper. Be careful not to overfill a box or crush items within a box with the weight of the contents.

Proper storage ensures the integrity of the textiles and makes it easier to search through the box without creating chaos. Small accessories or items, particularly those that may snag on other items in the box, should be kept in a muslin bag or wrapped in tissue. If something permanently attached to a textile item (e.g., a hook or buckle) could catch on the threads of the textile, pad the snag risk with tissue before storage. In high-relative-humidity environments, practitioners can create a Tyvek or mylar barrier between the attached accessory and the fabric. If possible, keep a list of items in the box on top of the items, with photographs, to help staff know what the box contains at a glance without disturbing the contents.

To further reduce stress on the folds when storing textiles in boxes, best practice recommends refolding items every two to four years, with heavier and more fragile items closer to every eighteen months to two years. Refold items along different fold lines each time. In addition to boxes, some items, particularly fragile items, can be stored flat in drawers, using tissue paper as a barrier between items and the drawer. Use caution when opening and closing drawers to avoid materials shifting; archivists can pad the drawers with rolls of tissue paper, unbleached muslin, or batting covered with unbleached muslin to help keep the items in place. The best option is drawers made of powder-coated metal rather than wood or plastic. If wooden drawers are the only option, cover them with unbuffered, acid-free tissue paper or acid-free barrier paper. Large flat items like quilts or flags can also be stored rolled around acid-free tubes wrapped in acid-free unbuffered tissue or paper.

Care, Preservation, and Display

Ironing and Steaming

Consider ironing an item after accessioning or if it has been in storage for a long time. Before ironing, inspect the item to determine whether or not it should be ironed. Delicate, damaged, or rare textiles should not be ironed. When using an iron to de-wrinkle an item, keep it on the lowest setting. It is rarely appropriate to steam a historic textile item in a collection; do not do so without consulting a textile conservator first. Do not use steam on older, fragile, or delicate items, such as silk, as this may affect the dyes and change the item's color. Wool shrinks with heat and moisture, so it is essential to use low heat without steam. Place a piece of unbleached muslin between the iron and the textile to further protect it from the heat. For some items,

the best course of action may be hanging it on a hanger, a quilt rack, or a dress form and using gravity to pull out as many wrinkles as possible.

Cleaning

At some point in a textile's life, it will need cleaning, whether by someone on an archivist's team or by a textile conservator. Never clean historic textiles in a washing machine, by fully submerging in water, or by commercial dry cleaning. If an item must be washed by anyone, take care with the type of detergent or cleaning agent that is used, as these can adversely affect the materials and dyes in historic textiles. Some readily available laundry detergents can be used as long as they are diluted to weaken them and contain no perfumes, dyes, or brighteners. When possible, test the fabric's reaction to the selected cleaning solution in a small and inconspicuous spot, such as the underside of a seam, before cleaning more visible areas of the textile. For items made of silk, wool, or other protein-based fibers, or if more than minor spot-cleaning is needed, consult a textile conservator before deciding on whether to clean them and how.

For cotton and canvas, spot cleaning is recommended, using warm, 80-90 degrees Fahrenheit (20-32 degrees Celsius) water and a gentle detergent like Seventh Generation Free and Clear. Use a microfiber cloth to dampen the area and press gently. Rinse with warm or cool water using a clean microfiber cloth and press any remaining water out using an absorbent cotton or microfiber towel. Do not scrub, rub, or wring, as that may damage the fabric. Lay items flat to dry over a raised screen to allow air flow.

A preferred way to surface-clean textiles is to vacuum them. Only vacuum textiles that are robust enough to handle it. Use an adjustable-strength, canister-style vacuum with a soft brush attachment, such as a Nilfisk[4]. Place a buffer such as a screen, piece of mesh, or cheesecloth between the textile and the nozzle to keep the pressure from detaching embellishments and sucking them into the dust bag. When vacuuming fabrics and textiles, use the lowest setting possible. Use a gentle touch with very little pressure on the textile. While doing this, gently keep a hand on the textile to prevent it from being pulled into the vacuum and to decrease the stress exerted on the fabric while cleaning.

Never vacuum textiles that are fragile or in poor condition. When in doubt, it is better to leave the textile as is than to expose it to the pressures of vacuuming. For specialty, heavily soiled items or fabrics such as silk, or animal-derived fabrics made from leather or fur, consult a textile conservator before cleaning, particularly when it involves more than a gentle vacuuming. Alternatively, if it is financially feasible, wait until one's institution can afford a textile conservator to perform the cleaning.

Exhibiting and Displaying

Some institutions are fortunate to have dedicated display space. Others must share display space with workspace, a reading room, the larger library, or an area in which archives and special collections are housed. The space available to practitioners will affect how to put items on exhibit and what items can be displayed. For instance, a large quilt cannot be hung if there is no space on the wall. A fragile, faded item is not appropriate to exhibit if it cannot be displayed in an ultraviolet (UV)-protective case in low light (and even in such circumstances should never be placed on long-term or permanent display). Carefully assess the space before deciding if or how textiles can be displayed properly.

One of the most important considerations in displaying textiles is to keep the items away from direct sunlight and other excessive light sources. UV rays are among the harshest, but all light can be damaging over time. To achieve this goal, display textiles behind UV-protective glass, whether framed or in a display case or cabinet, whenever possible. Ideally there will be no windows to the outside in a display area. But, if it is unavoidable, keep textile items away from

REMEMBER

Light is a hazard; keep textiles away from direct sunlight and limit artificial light exposure.

Keep textiles away from air vents and returns to minimize dust and mold.

Avoid stressing the textile by properly supporting its weight.

FIGURE 16. Light damage to non-collection textiles at the bottom of a display case. The darker portion is the original color. The display area is a hallway with no exterior windows.

direct sunlight and cover the windows. When the sun is strongest, keep the curtains or shades drawn to minimize sun exposure, particularly if there is no UV-filtering film over the windows. If it is financially possible, one's repository can install UV-filtering film over windowpanes and glass display cases to help decrease sun exposure while still allowing natural light.

Many overhead lights can have UV-filtering film or covers added to help reduce light exposure; LED bulbs have little to no UV output. UV-filtering film and sleeves have a limited lifespan—sometimes as little as five years. So, check their efficacy with a light meter on a regular basis and replace them as necessary. When the display space is not in use, turn the lights off and draw the shades to reduce light exposure. Textiles should be displayed for a time period *not exceeding* a few months at a time, adding up to one year cumulatively out of every five to ten years, depending on the item, to aid in their longevity. Fragile, delicate, or otherwise prone-to-fading items should be exhibited for even less time. Remember that exposure to light causes irreparable damage to fibers, dyes, and materials, so limiting exposure time is essential. Note the range of dates an item has been on display in its accession file in order to have a record of light exposure over time *(see Figure 16)*.

It is also important to avoid creating a microclimate in the exhibition mounting space. Use acid-free materials and spacers for framed items to ensure that the glass and frame do not directly touch the textile. If objects are exhibited within a case, ensure that there is proper airflow so that a non-ideal environment is not trapped within the case. While items are on display, practitioners can add small environmental sensors in each case to monitor the environment. Ideally, the environment in the space where textiles are exhibited should be similar to the conditions recommended above for storage spaces.

Another thing to exclude from an exhibit space is the locations of HVAC air vents, returns, and filters. Place unenclosed textiles away from the direct impact of these to help preserve materials. Vents spread dust and are usually not as regularly cleaned as other parts of the exhibit space. Vents can also easily spread mold spores. During the warmer months, ceiling-mounted vents often drip condensation. This is particularly true in the case of older HVAC systems, so avoid placing uncovered items beneath vents.

Displaying Clothing

There are many ways to display clothing. One of the most common is on dress forms. Dress forms are mannequins with padded torsos for exhibiting clothing. They can have limbs, hands, feet, or heads, depending on one's preference. Different styles of dress forms are available through archival or museum resources such as University Products or Gaylord. Manex-France sells dress forms that are tested, so they do not off-gas and are reasonably priced. Other retailers sell fixtures and mannequins that can serve as economical options for short-term display[5]. They are not archival or museum quality and often are not environmentally suitable for preservation, so they are only to be used for short periods of time and with materials that are not fragile or rare. These economical options can be wrapped in unbleached muslin to create a barrier between the dress form and the textile. Choosing lightly padded dress forms with fabric exteriors is generally advisable to help support a garment while it is on display. Select a dress form that is smaller than the garment that is being displayed. As with all recommendations when caring for textiles, the main aim is to not stress the fabric. Not all garments are suitable for display on a dress form. For instance, heavy and/or delicate items may not be able to withstand being draped over a form for long periods, or at all, and should be displayed using a method other than dress forms. When this is the case, decide if it is better to display the items for a short time, display them flat or folded, hanging on a padded hanger, or not at all.

When using a dress form, lightly support areas such as sleeves, hips, shoulders, chests, and buttocks with washed batting or tissue paper rather than letting those areas rest directly on the dress form. Do not use enough padding to strain the fabric, but enough to help the item

FIGURE 17. A male uniform on a female dress form in image A (above, left). Note the small size of the dress form means that buttons are not pulling or straining as seen in image C. Straight pins with large heads, in image B (above, right) are used to hold pants in place.

hold its shape and give it structural support. Occasionally, especially with older custom-made or custom-tailored clothing, the smallest dress form available may still be slightly too large in one area or another. Items may still be displayed, but archivists must be careful not to force the garment onto the mannequin, or force buttons, zippers, snaps, or ties closed. Leaving them open and unfastened will often allow for the use of the form without stressing the fabric. For dress forms that are much smaller than the piece to be displayed, it is possible to wrap them in unbleached muslin to add bulk in the places that are needed. This method also creates a space to pin items in place. That said, there are some items where part of the garment cannot be made to fit the form by a simple fix, and those items will have to be displayed flat.

Display hats with or without a head mount. Regardless of the method chosen, support the crown of the hat using acid-free tissue paper. As with garments, do not overfill; use just enough to give the item shape and support without straining the fabric or seams.

Ideally, practitioners can use padding to make the form fit the garment. Cotton tape can be used as a belt or suspenders as needed. Some garment textile items may be pinned to aid in their display. When doing this, use bulb- or non-spring-style safety pins, or thin straight pins, which are less damaging to the fabric. Pinning items is the least-preferred method and should be done rarely. Do not pin fragile, delicate, or heavy fabrics, or fabrics in poor condition. Additionally, items can be attached to a support by hand-sewing a cotton support piece to the underside or back of a garment using long running stitches and fastening or pinning the support garment to itself or the dress form so that it supports the item on display and absorbs the stress. Before choosing this method, consult with a textile conservator for optimal results and the least amount of damage to the original garment *(see Figure 17)*.

Hanging Items for Display

Large items such as quilts are often displayed on a wall. This can pose challenges because of their size and weight. One way to hang a quilt is to hand-sew a cotton “sleeve” onto the back of the quilt using long running stitches[6]. The sleeve has a solid back and a tube or loops at the top, providing support to hang the textile. Slide a hollow aluminum tube through the cotton tube/loops and then use wire strung through the tube to hang the textile from the wall, ceiling, or picture rail. This helps to support and distribute the item’s weight and places most of the hanging stress on the cotton backing rather than the textile being displayed. Practitioners can use this method for many types of textiles, but it is not recommended for fragile or delicate items. Items can also be laid on a fleece-covered slant-mount or board that supports the entire item and gives a similar effect to hanging the item. Additionally, items can be draped over a padded rod or a quilt rack as long as there is support at the fold and the weight of the textile is distributed evenly.

If displaying items flat or partially folded, add a layer of mylar or unbuffered tissue beneath them to limit contact with materials that may be hazardous to the textiles. For folded fabrics, add rolls of unbuffered tissue paper to support the folds. If a textile is lying on top of or draped across other items, ensure that it is supported where it is touching the items or draped across any gaps. Adding tissue or cotton padding to any corners where the textile is hanging or draped lessens the stress on that part of the fabric and keeps it well supported.

Environmental Hazards

In addition to risking damage through suboptimal temperature and relative humidity, textile items face many of the same threats as paper-based collections: mold and pests. These cause irreparable damage to fibers and dyes and can also be dangerous to human health. It is important to have a mitigation kit with personal protective equipment (PPE) handy in the event that practitioners need to deal with these issues. PPE kits should include, at minimum, a high-efficiency particulate air (HEPA) filter mask or respirator, eye-protective goggles, and

disposable rubber gloves. Kits should also include disposable coveralls or aprons and foot protection. Ideally, the PPE items will be disposable. If an item is not for one-time use, it can be thoroughly decontaminated after each use with hot water and bleach. Decontaminate HEPA respirators with rubbing alcohol, Lysol, or denatured alcohol, and change the filters regularly. While the information in this section is intended to be a starter guide, it is recommended that archivists contact a textile conservator as soon as possible after isolating the affected materials. A conservator can help guide a repository through mitigation strategies that can safely be handled in-house and when it is imperative to work with outside professionals.

Mold

Mold grows on organic materials when the combination of relative humidity and temperature in the space reaches conditions it finds favorable, particularly in warm, humid environments like the American South or tropical locations. This can happen when items have become wet and are not dried in a timely manner, or simply when ambient conditions reach certain levels[7]. Mold on textiles can be either active or inactive. Active mold often appears "fuzzy" and smears easily. Inactive mold generally presents as a pale "dusty" substance that blows away easily. However, do not blow on mold to test this! Mitigate either active or inactive mold for the good of the object and to preserve the repository's other collections. Active mold in particular can cause significant harm to many collection objects, and inactive mold can reactivate in the right environmental conditions. Note that both active and inactive mold are very hazardous to human health, and one should take proper precautions when working with them using the PPE noted previously. Some mold is particularly dangerous. When in doubt about the type of mold that is found, it is always better to consult professional conservators before attacking it[8]. Consult with professionals before beginning treatment if there are any doubts about what course of action to take. If a small, active mold bloom affects only a few items, attempt to deactivate it to reduce the chance that it will spread or get worse. If the mold is extensive, archival practitioners will probably need to work with professional mold remediation experts.

If mold is discovered on an item, it is important to isolate the item immediately from the non-affected items. If the object shares a box with other items, inspect them to see if they are also affected. Place any affected items in a plastic bag before moving them; this prevents spores from spreading to non-affected items. If many items are affected, or an entire room has been exposed to mold, hang plastic sheeting to separate the affected areas, using duct tape to seal seams. Reduce humidity in the areas if at all possible. If a repository's system cannot dehumidify air brought in from outside, archivists should bring in a separate dehumidifier as quickly as possible. Depending on the cause of the incident and external conditions, the HVAC system can actually add more moisture to the air and cause further problems. So, it may be advisable to shut off the HVAC system entirely. Move unaffected items to a new box and throw the old box away as it may harbor mold spores.

Once any affected items are moved, the active mold must be rendered inactive. There are many ways to do this, but one of the easiest ways is to freeze the items. This can be done in a regular freezer, though using a chest freezer for large items is optimal. Be sure to keep freezers condensation-free when not in use. Freezers can also be kept at room temperature and only be plugged in and brought to freezing temperature after items have been placed in them to lessen the temperature shock. Wrap affected items in polyethylene or Tyvek sheeting, but do not create a hard seal. This will protect the textile from ice crystal formation, prevent creating a microclimate, and allow for airflow to the affected items. Please note that freezing does not kill spores. It only inactivates mold growth, but it can buy some time while waiting for more intensive remediation. Materials can be thawed and air-dried by unplugging and cracking the freezer lid to allow for airflow and slowly bringing items to room temperature. Once they are at room temperature, remove items from the freezer and lay flat to dry. Use undyed cotton or microfiber cloths underneath the items to absorb water and gently press cotton or microfiber towels to the items as they dry to remove condensation and dampness. Practitioners may

have to change these cloths out multiple times if there is a lot of condensation during the thawing process. If it is a large mold outbreak or affects delicate, fragile, or the repository's most important collections, it is imperative to consult a professional textile conservator or an organization that specializes in historic textile conservation and restoration. Conservators can also assist in the best course of action to entirely deactivate and then clean mold on items. Once the mold is inactive, many textiles can be vacuumed using the techniques previously described. Always wear a mask or HEPA respirator when working with moldy items or in moldy areas.

If mold is discovered on items, it is critical to identify the reasons or sources and mitigate it. For instance, if the building has high humidity, invest in dehumidifiers and fans for air circulation. Ensure the dehumidifiers are self-emptying or are regularly emptied. If they are not self-emptying, they should have automatic shutoff functions to prevent water overflow. If one's repository uses any type of dehumidifier, check on it daily to ensure that it is emptying properly and has not shut off. Avoid having full buckets of water sitting in the room. Check the HVAC system, particularly heating coils and drip pans, as they are common sources of mold growth. Professional cleaning services may need to be engaged to thoroughly disinfect and fix the problem areas. Disinfect and dry the shelves before returning materials to their storage locations.

Pests

Pests are one of the most common problems that archival repositories have to deal with regularly. The ideal way to manage pests is through prevention. Sealing off cracks, gaps, holes, chimneys, and other potential points of ingress using caulk, expanding foam, chimney caps, or other appropriate methods is the first course of action. For windows that open, ensure that there are intact screens, without rips or tears, to keep small insects from entering; ideally, keep windows closed. Many rodents can gnaw through almost anything, so filling holes and spaces with steel or copper wool, which they cannot chew through, before further sealing helps deter them. As with other archival and museum collections, do not eat or drink in collection spaces. Eliminate food sources as much as possible or create barriers to them by keeping items in protective enclosures; remove food waste daily from spaces that hold or are adjacent to collections. Implementing an Integrated Pest Management (IPM) program for collections and repositories is recommended. Regularly dust, sweep, and vacuum to keep the space as clean as possible. Set appropriate traps (see the section "Traps" below) and check them regularly. Replace them every couple of months or sooner if needed. Check textile items regularly to monitor for pest damage and active infestations and establish a monitoring schedule and log to ensure that checks are happening consistently and that condition changes are noted.

It is essential to identify the type of pest present to determine the appropriate course of treatment. If in doubt, call a textile conservator and/or a pest professional to help with identification as well as mitigation strategies. As with mold, if pest damage is discovered on textiles, isolate the items, if possible, without exposing other materials. Place affected items in a polyurethane bag and seal. Bagged items can be placed in a freezer below -4 degrees Fahrenheit (-20 degrees Celsius) for 72 or more hours. Items should be allowed to warm up before refreezing for a further 72 hours to kill any remaining pests. This kills any eggs that were not noticed and may have started to hatch. Textiles can also be left sealed for several weeks, after which they can be checked for further signs of an active infestation. If safe to do so, gently vacuum the surface of the textile after thawing using the methods discussed previously. Freezing and vacuuming are the preferred methods for killing and cleaning infestations in items wherever possible. Do not use common pesticides, Borax, or other poisons, as they can damage the textiles further.

Traps

- **Light Traps** use light to attract insects and trap them with glue or an opening they cannot escape.
- **Pheromone Traps** use specific pheromones to attract different types of insects. Various types of pheromone traps are available for different insects. These traps contain the insects using glue or one-way openings.
- **Snap Trap**s are spring traps that are triggered when a rodent steps on them, usually attracted there with a small bit of food or a commercially available lure. They are intended to break the rodent's neck but do not always do so. There are different-sized traps depending on the type of rodent. While they do kill the animal, they are considered to be the most humane method for rodent control.
- **Catch-and-Release Traps** are cages or boxes with a door that closes after an animal enters the trap. The animal is usually lured using appealing food at the far end of the trap from the triggered door. Once the animal is caught, it must be released or brought to animal control. As with snap traps, there are different types and sizes of catch-and-release traps to purchase.
- **Glue Traps** are traps that use glue to catch pests. They are generally passive but can be part of a light or pheromone trap. They are typically hanging or flat/tent traps placed on the ground along baseboards, corners, or under furniture and shelves. However, glue traps can also catch rodents, reptiles, birds, and bats. While vegetable oil can break the bond, it is still difficult to unstick animals that were not intended to be caught. In any case, it is not advisable to handle wild animals. Be sure to think carefully about using glue traps because of the complications they create. They can still be the best course of action in some situations, especially if very small ones are chosen and that most non-insects cannot fit inside.

Common Pests

- **Clothes Moths**[9] and other moths are some of the most common pests that those with textile collections must guard against. It is their larvae that damage fibers. They prefer natural, protein-based fibers, though they will also damage cotton, jute, linen, and other plant-based fibers. Clothes moths tend to enter buildings through doors, windows, and cracks. They may also live in birds' nests in chimneys and attics and enter there. One may see moths flying around, but they prefer to congregate in dark, undisturbed areas, including under furniture and in the folds of clothes. Periodically check clothes, particularly those hanging in closets or on racks, to ensure moths have not gotten into a repository. Pheromone, light, hanging, or floor glue traps are all effective for protecting one's space from moths.
- **Carpet Beetles** are among the most common and challenging pests to eliminate once there is an infestation. Practitioners can identify these small insects by their round, generally black and brown or tan mottled or striped shells. Like moths, they enter through cracks in doors, walls, floors, windows, and screens. They can also live in bird nests in attics and chimneys. Carpet beetles lay eggs in dark, dusty, or cobwebbed areas. Regularly vacuum, sweep, and dust floors, ceiling corners, and textiles to eliminate these attractants. Carpet beetle larvae (not the adult beetles) damage textiles. The larvae are particularly attracted to wool, fur, and feathers, although they will also attack other natural fibers. Larvae casings are often the first sign of an infestation, though in the spring and summer adult beetles may be noticed on and near windows. They are very common and are most active above 70 degrees Fahrenheit (21 degrees Celsius). While they do fly, the best traps are set close to or on the floor. Food, light, glue, and pheromone traps are best for carpet beetles. If it is a large or persistent infestation, hire a textile conservator to help determine the best course of action. It is important to catch potential carpet beetle infestations as early as possible since they can be very difficult to eliminate. Once the infestation is under

FIGURE 18. The effects of clothes moths or carpet beetle larvae on wool broadcloth pants.

control, continue to set traps and monitor spaces and collections for recurring infestations *(see Figure 18)*.

- **Mice and Rats** are a double threat to textiles. They like to use fibers from textile collections as nesting material—either hunkering down in the items themselves, or "snipping" bits from fabrics to bring back to their nests. While doing this, they also spread biohazards through their urine, feces, and parasites such as fleas. As with carpet beetles and moths, mice enter through gaps in walls, roofs, and floors. A mouse can enter through any space that its head fits through. They are attracted to food and warmth and tend to enter buildings during the winter or particularly rainy or damp periods. The first sign of mice is usually their droppings. Even when there is not obvious evidence of mice, they leave traces—grease, urine trails, scrabbling in the walls. Before dealing with rodents and what they leave behind, one should be sure to use full protective gear, including a respirator mask, coveralls, and shoe protection to avoid tracking feces and urine into other parts of the building. Mice follow urine trails, so use a mild bleach solution to mop non-porous floors to sanitize areas they have been. Rodents can be eradicated in myriad ways. Snap traps are one of the easiest ways to eliminate them, but practitioners will need to bait and check these traps daily. Though designed to kill, sometimes the traps only maim. In these cases, one must dispatch the rodent by alternate means. If someone in one's repository cannot handle this responsibility, then select another method. Catch-and-release traps are also an option, though mice caught in them can die in as little as six hours. These traps will need to be checked at least twice daily. Poison is not recommended as the rodent can die in a place where it cannot easily be removed and may cause further problems. It can also unintentionally poison another animal if consumed. Once it is certain that all rodents are dead or gone (and not hiding in the walls), plug and fill points of ingress.
- **Silverfish** are primarily regarded as book pests, but they can be just as harmful to textiles. Silverfish like moist, dark, humid environments and are nocturnal. They prefer paper products but will eat anything that is sugary or starchy, including linen, cotton, and cellulose. If silverfish are present in textiles, they are also likely to be present in paper-based collections. As with mold, treat a silverfish infestation by freezing affected materials.

Conclusion

There are many things to consider when dealing with textiles in one's archives. Much of the work is in deciding how they will be accessioned and described. Pick a system, whether it is one already in place, or a new one, and be consistent in using it. Identifying and describing items thoroughly will help archivists, researchers, and other repositories when searching for, displaying, and researching items in a repository's collection. Once accessioned, this will also help archivists notice changes when surveying for pests and problems in the textile collection. Housing and displaying textiles, while different from archival materials, is closely related and uses many of the same supplies and best practices. While this technical leaflet is not comprehensive regarding the care of textiles, it provides a starting point. The most important things to remember are that doing something is almost always better than nothing, working within one's levels of comfort and ability, and seeking out a second opinion when in doubt about the correct course of action. Do not despair if there are concerns about feeling far behind perfection. Begin by implementing best practices as a repository can handle them, and archivists will find themselves in good stead.

Appendices: Glossary and Further Resources

Appendix A: Glossary

Bulb-style safety pin: A safety pin with a pear (bulb) shape, without the coil of a standard safety pin.

Dress form: A padded paper, cloth, or wire representation of the human figure from shoulder to thighs, typically without arms, which is mounted on a stand and used for fitting garments.

Embellishment: Ornamentation upon cloth. In textiles this can be embroidery, beading, sequins, lacework, tassels or fringe, decorative weaving, or appliqué, among other techniques.

Embroidery: The art or process of forming decorative designs on fabric with hand or machine needlework.

Fiber: A slender and greatly elongated natural or synthetic filament (as of wool, cotton, gold, rayon, etc.) typically capable of being spun into yarn or threads. Fiber for the production of textiles is generally obtained from protein (animal)-based or cellulose (plant)-based sources.

Head mount: A mannequin of the human head used for displaying hats and other head accessories.

Integrated Pest Management (IPM): A proactive and holistic approach to address pests. It combines prevention, identification, and monitoring with eradication solutions to help institutions.

Loom: A frame or machine for weaving at right angles two or more sets of threads or yarns to form a cloth.

Mannequin: A form representing the human figure used especially for displaying clothes.

Textile: Cloth or goods produced by weaving, knitting, or felting.

Weave: To form cloth by interlacing strands of fiber.

Appendix B: Further Resources

- The George Washington University Museum and The Textile Museum have a "Textiles 101" site that is very useful for learning about textile terms and general textile information museum.gwu.edu/textiles-101-resources
- The Nomenclature for Museum Cataloging is a joint venture between the American Association for State and Local History and the Canadian Heritage Information Network that is free under a Creative Commons license. It is a controlled vocabulary that allows one to search for identification terms to standardize one's naming conventions. https://page.nomenclature.info
- Integrated Pest Management (IPM) plans and assistance MuseumPests.net

CARE, DISPLAY, AND PRESERVATION ASSISTANCE

- Museum Textiles Services, LLC www.museumtextiles.com
- National Park Service Conserve O Gram Publications cover most aspects of textile and artifact care. Much of what applies to artifacts can be translated to textiles. www.nps.gov/museum/publications/conserveogram/cons_toc.html#collectionpreservation
- MuseumPests.net: Integrated Pest Management (IPM) for Cultural Heritage Institutions

IDENTIFYING FABRIC TYPES, TEXTILE HISTORY

- The site Vintage Clothing Guides is a straightforward, easily understandable site for assistance in identifying different fabric types. https://vintageclothingguides.com/category/fabrics
- Additionally, Wikipedia is an excellent starting point when looking at textile types or manufacture:
  - Textile: https://en.wikipedia.org/wiki/Textile
  - Fabric Types: https://en.wikipedia.org/wiki/List_of_fabrics

THE CONSERVATION CENTER FOR ART AND HISTORIC ARTIFACTS is an excellent resource for everyday care of one's items, pest identification, conservator location, and disaster recovery. They offer webinars and in-person workshops to further hands-on knowledge. https://ccaha.org

- Pest Identification: https://ccaha.org/resources/know-your-bugs
- Selecting Materials for Storage and Display: https://ccaha.org/resources/selecting-materials-storage-and-display
- Mold Infestations: https://ccaha.org/resources/managing-mold-infestation-guidelines-disaster-response

AMERICAN INSTITUTE FOR CONSERVATION TEXTILE SPECIALTY GROUP has a conservation wiki as well as a directory of conservators with a guide to hiring a conservation professional.

- Textile conservation wiki: www.conservation-wiki.com/wiki/Textiles

CONSERVATION AND PRESERVATION SPECIALISTS

- American Institute for Conservation Find a Conservator: www.culturalheritage.org/about-conservation/find-a-conservator
  - City, state, or geographic regions may have a conservation association, or a museum or archival association, with a list of conservators by region, specialty, or by name.
- **ICA Art Conservation** is located outside the MARAC region in Cleveland, Ohio. It is the closest nonprofit conservation center that has textile conservators. www.ica-artconservation.org

ARCHIVAL AND MUSEUM SUPPLIES, includes storage and display options, cleaning supplies, etc.

- Gaylord Archival Textile Preservation www.gaylord.com/c/Textile-Preservation
- Hollinger Metal-Edge Textile Storage www.hollingermetaledge.com/textile-storage
- University Products (search "textile" for many options for display and storage) www.universityproducts.com
- Manex-USA Dress Forms www.manex-usa.com

Bibliography

Alaska.gov. “Libraries, Archives, Museums: Condition Reporting,” 2020. Accessed October 18, 2024. https://lam.alaska.gov/condition-reporting/home.

Crawley, Sydney, and Matt Bertone. “Clothes Moths and Carpet Beetles: Identifying and Controlling Fabric Pests | NC State Extension Publications.” Accessed October 18, 2024. https://content.ces.ncsu.edu/clothes-moths-carpet-beetles-controlling-fabric-pests.

Galban, Maria, and Sarah J. Wolf. “Salvage at a Glance Part v: Textiles,” 2003. Accessed October 18, 2024. www.nps.gov/museum/publications/conserveogram/21-08.pdf.

International Quilt Museum. “Care and Conservation | International Quilt Museum - Lincoln, NE,” 2022. Accessed October 18, 2024. www.internationalquiltmuseum.org/ collections /care-and-conservation.

Museum Textile Services. “Identifying and Mitigating Insect Infestations.” Accessed October 18, 2024. http://www.museumtextiles.com/uploads/7/8/9/0/7890082/managing_a_mold_invasion.pdf.

Niemeyer, Shirley, and Patricia Cox Crews. “Care of Quilts-Cleaning.” DigitalCommons @ University of Nebraska - Lincoln, 2024. Accessed October 18, 2024. https://digitalcommons.unl.edu/textiles_facpub/4.

Price, Lois Olcott. “MANAGING a MOLD INVASION: GUIDELINES for DISASTER RESPONSE,” 1996. Accessed October 18, 2024. https://dhpsny.org/sites/default/files/pdfs/CCAHA%20Managing%20a%20Mold%20Invasion%20Guidelines.pdf.

Notes

1. Nomenclature for Museum Cataloging, last updated May 7, 2025, https://page.nomenclature.info.
2. "Condition Reporting– Textiles", Alaska State Libraries, Archives & Museums, last modified September 4, 2020, Textile Condition Reporting Page, https://lam.alaska.gov/ condition-reporting/textiles.
3. Baker, Cathleen A. and Randy Silverman, "Misperceptions about White Gloves", International Preservation News (IFLA PAC), No. 37 (December 2005): 4-9, accessed August 11, 2025, www.loc.gov/preservation/about/faqs/ipnn37.pdf
4. www.hollingermetaledge.com/nilfisk-museum-preservation-quality-vacuums.
5. Examples of places to find less expensive dress forms: Amazon.com, Displays 2 Go, and Store Supply Warehouse.
6. International Quilt Museum, "Preparing Quilts for Exhibition" www.internationalquiltmuseum.org/collections/care-and-conservation.
7. National Park Service, "Salvage at a Glance Part V: Textiles", Conserve O Gram, Number 21/8, www.nps.gov/museum/publications/conserveogram/21-08.pdf.
8. American Institute for Conservation, "Find A Professional", accessed August 11, 2025, https://www.culturalheritage.org/about-conservation/find-a-conservator.
9. Bertone, Matt and Sydney Crawley, "Clothes Moths and Carpet Beetles: Identifying and Controlling Fabric Pests", NC State Extension Publications, June 14, 2021, https://content.ces.ncsu.edu/clothes-moths-carpet-beetles-controlling-fabric-pests.

About the Author

Jessica E. Johnson is the Collections Archivist at Virginia Commonwealth University (VCU) in Richmond, Virginia, where she works closely with their historic textiles and medical artifact collections. Previously she worked as an Archivist at Virginia State University, as the Facilities Support Assistant at Historic Cherry Hill in Albany, New York, and as an Archives Technician at Saratoga National Historical Park in Stillwater, New York. It was at Historic Cherry Hill and Saratoga National Historical Park where she obtained her first experiences with historic textile care and management, which has continued through to VCU. She received her M.S. in Information Science (Archives and Records Management), her M.A. in History (Public History) from the University at Albany, SUNY, and her B.A. in History from the University of California, Santa Cruz.