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Claire Eagle

University of North Alabama

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The Ins and Outs of Textiles

Claire Eagle

Textiles are not only one of the most common items found in a museum, but also some of the most fragile. In ensuring that these items remain in the best condition, it is important to know exactly how to handle, identify, and care for them. First and foremost, one must determine exactly what a textile is as the term itself has a very broad meaning in the museum world. According to the National Park Service there are seven categories under the term textiles. These include bed coverings including quilts, clothing, tapestries and wall hangings, upholstery, embroidered samplers and household decorations, baskets and mats, and rugs.¹ These items under the term "textile" not only require certain care and handling, but also have certain pests and agents of deterioration detrimental to their material, and require certain numbering practices different to other museum objects. When all of these practices are followed and pests are properly dealt with a textile object can have a long life in any museum.

¹Sara J. Wolf, Appendix K: Curatorial Care of Textile Objects (Harpers Ferry Press, 2002), 1.

Proper care and handling of a textile begins as soon as it is brought into the museum. When any object becomes part of a museum collection, it is important to complete a condition report. This condition report, which should be updated periodically, serves as a guide in the care and handling of this object. There are three specific terms used when describing the condition of a textile. The first term is ‘crocking.’ Crocking is the loss of color in the material. The dyestuff is gone, but the fiber is still there. ‘Fraying’ occurs when the separation of threads leads to a raveled or worn spot on the textile. The final term is ‘tendering.’ This term is most commonly used in the description of silk. A deterioration of threads usually occurs because of a combination of light, heat, or perspiration exposure, and the use of salt mordants.²

In addition to reporting on the condition of the material, measurements should be taken. Two dimensional textile objects, such as rugs and tapestries, should be measured along the warp and the weft. The warp is the stationary element, while the weft is the moving element.³ It is also important to determine whether to include any

² Rebecca Buck and Jean Allman Gilmore, eds., *Museum Registration Methods*, 5th ed. (Washington DC: American Association of Museums Press, 2010), 229.

³ *Ibid.*, 220.

fringe or tassels with the overall measurement. *Museum Registration Methods* notes that whether they are included or not the measurements of any fringe, tassels, or borders should also be recorded and noted separately.⁴ Measuring three-dimensional textiles, like clothing, is a little different than other textiles. Overall measurements are taken just as a rug or tapestry is measured, but tailoring measurements are also taken. This includes the length of the inseam and waistband.⁵

During this process an accession number is also given to the textile. This number is how the object is identified in the museum. Due to this fact it is often required that the textile is labeled with the number. To ensure that the textile is not harmed special care needs to be taken within this process. Hand sewing a hand-written label into a textile is the most practiced method. This method is recommended for all textiles except those that are disintegrating and in very poor condition. *Museum Registration Methods* suggests using unbleached fabric tape or non-woven polyester.⁶ After the choosing of the material the book outlines a step-by-step process that should be followed to complete the labeling of a textile without harming it. Step one consists

⁴ Ibid., 220.

⁵ Ibid., 221.

⁶ Rebecca Buck and Jean Allman Gilmore, eds., 244.

of writing the number on the twill tape, leaving about $\frac{1}{4}$ inch on each side of the number for adhering to the textile. The second step requires the ironing of the label to set the ink then washing the label in a container using distilled or de-ionized water and Orvus detergent. It is essential the label be then rinsed several times in clear, distilled or de-ionized water. After the labeled has dried, it has to be determined where it will be placed. Before attaching it turn under the cut ends of the label, then sew label in place using needle and thread. It is important that you sew between the threads of the textile and not through the textile weave.⁷

Care should be taken to place the labels in a place that would not be seen if the textile was displayed. When labeling clothing, the label should most often be placed where a modern clothes label exists. Rugs, quilts, tapestries, etc. should be labeled on the reverse corners so the label is easily found.⁸ Finally, if the textile is too fragile because of its deteriorating state, no label should be placed on the object. Instead, the identifying number should be placed on the container the textile is in, any wrapping it may have, and any supports it may have.

⁷ Ibid., 244.

⁸ Ibid., 261.

After the textile has had a condition report completed and it is labeled it must be stored. Properly storing a textile directly affects the life of the object, effectively controlling the agents of deterioration. The storage areas used to house textiles need to be kept clean, remain dark, and have the temperature and humidity levels within recommended ranges.⁹ Mary Fahey, the chief conservator at the Henry Ford Museum suggests temperature for storage areas in the winter to be kept at seventy degrees Fahrenheit with a thirty to thirty-five percent relative humidity level. While in summer the temperature should be kept a little higher at seventy-five degrees Fahrenheit and the relative humidity level should be between fifty and fifty-five percent.¹⁰ Keeping storage areas at these temperatures and relative humidity levels is important. Higher temperatures can leave the textiles brittle. Brittle textiles in high relative humidity can easily be overcome with biological activity further damaging the object.¹¹

Light is another agent of deterioration plaguing textiles.

Damage done by light is irreversible. Both ultraviolet and visible light

⁹ Mary M. Fahey, "The Care and Preservation of Antique Textiles and Costumes," *Henry Ford Museum and Greenfield Village*, <https://www.thehenryford.org/research/caring/textiles.aspx> (accessed October 13, 2015)

¹⁰ *Ibid.*

¹¹ Wolf, 10.

can cause bleaching of dyed textiles and darkening of undyed textiles.¹² This can also lead to the weakening of the fabric causing it to deteriorate faster. However, preventing light damage is easily done. It is best to store textiles in rooms without windows. If that cannot be achieved filter the ultraviolet light coming in through the window with filters and/or Plexiglas.¹³ Storage areas that do not have doors that open directly to the outside can also prevent light damage to textiles. When light is necessary, especially in display, it is recommended to have visible light no higher than fifty lux.¹⁴

Pollution is not just the hazy smog visible in big city skylines. There are many pollutants that can cause deterioration of a textile. Chemical pollutants like acid rain and ozone can degrade the fibers of any textile.¹⁵ Others like cigarette smoke, aerosol sprays, and other cleaning agents can leave oily deposits on fibers causing staining.¹⁶ Like damage from light, damage from pollutants can easily be prevented. HVAC systems in both storage and display areas filter the air so that these pollutants cannot come in contact with the textiles.

¹² Ibid.

¹³ Fahey

¹⁴ Wolf, 10.

¹⁵ Fahey

¹⁶ Wolf, 11.

Sealing the cases that these textiles will be stored in serves as extra protection. Chemical pollutants are not the only ones that cause harm to textiles. Dust and dirt is very harmful to textiles as well. These pollutants can dull and stain the textile. Silica, which is found in high amounts in dust and first can cause cuts and abrasion in textile fibers with its sharp surface.¹⁷ Limiting access by window and door to areas where textiles are can keep the pollutants away. Proper storage and regular cleaning of storage areas can keep textiles from being dramatically affected.

There is no one-way to store any textile. As previously stated, the term textile is very broad, encompassing many different types of objects. The type of textile the object is determines how it should be stored. There are three main types of textile storage. The first, flat storage, is the most ideal. Flat storage is the best for smaller textiles, like samplers, linens, and fragments. It is also the best option for fragile items as it offers the most support.¹⁸ The Upper Midwest Conservation Association cite two main categories of flat storage: Box storage and shelf/drawer storage in cabinets.¹⁹ Box storage should not

¹⁷ Ibid.

¹⁸ Ibid., 15

¹⁹ "Instructions for Storing Textiles in Flat Storage" Upper Midwest Conservation

be done in wood base cardboard boxes. Wood and uncoated metal shelves should also not be used. When stored in boxes the textile should first be wrapped in acid free tissue paper or put into acid free boxes.²⁰ Ideally, textiles are put into the largest box available. Where space is an issue and textiles must be folded to be stored periodic refolding is useful in keeping the fibers from weakening and breaking along the fold. Folds should also be padded with crumpled acid free tissue paper to reduce the severity.²¹ Finally, textiles should not be stacked. The stacking of textiles not only puts extra weight on the fibers but can also lead to problems when accessing each textile.²² This can cause even more stress on fragile fibers.

While flat storage is ideal there are some textiles, like rugs and large linens that are more easily stored when rolled. These textiles are rolled onto acid free tubes that are available in many different sizes. The National Park Service suggests that each tube be six inches longer than the width of the rolled textile.²³ In cases of large fragile textiles extra care should be taken. When rolling the textile acid free tissue

Association, (preserveart.org, 1999).

²⁰ Fahey

²¹ “Instructions For Storing Textiles in Flat Storage”

²² Ibid.

²³ Wolf, 16.

paper should be layered in between. This process involves layering tissue on the front facing side of the textile and rolling the textile onto the tube with tissue still in place.²⁴ After each textile is rolled onto their acid free tube each tube needs to be stored. Suspension is the best choice. A dowel rod is inserted in the hollow tube and the dowel is suspended from some kind of rack. Most common and economical is a simple dowel rack. A frame is constructed with notched that fit the dowel previously inserted into each tube.²⁵ Each textile is suspended horizontally for even weight distribution.

Finally, there is hanging storage. This way of storing is primarily used for clothing. Textiles such as dresses, coats, and bodices in good condition are easily stored hanging in a wardrobe. However, these textiles cannot be put on any kind of hanger. To reduce the amount of tension put on the shoulders and neck of the garment heavily padded hangers should be used.²⁶ Even with padding surrounding the hanger, wood and metal hangers should be avoided. Plastics hanger are the least hazardous to the textile and are the best

²⁴ Fahey

²⁵ "Instructions For Rolling Textiles," Upper Midwest Conservation Association, (preserveart.org, 1999).

²⁶ "Storage Techniques for Hanging Garments: Padded Hangers," National Park Service, 1994, 1.

choice.²⁷ Additional support may be needed with heavier garments.

The National Parks Service uses twill tape to support the lower part of the garment, their instructions read: “Using a needle and thread, securely stitch length of one inch wide cotton twill tape to seam allowances or strong areas of the waistband on the garment. Tie the tapes to the hanger’s wire neck, adjusting the lengths of the tape so they provide adequate support.”²⁸ This method gives extra support to the waist of the garment so that the entire weight is not on the shoulder and neck in the hanger. If space permits extra support can be added by stuffing crumpled acid free tissue paper under the collar and into the sleeves of the garment.²⁹

Last in the storage of hanging textiles is the importance of dust covers. These dust covers act as a barrier between garments. They can prevent the transfer of dyes as well as the tearing of other garments cause by buttons and other attachments.³⁰ While hanging can be space effective it is important to remember that the more fragile textiles cannot handle the stress put on the fibers.

²⁷ Fahey

²⁸ “Storage Techniques for Hanging Garments: Padded Hangers”

²⁹ Ibid.

³⁰ Wolf, 19.

Whether textiles are in storage or on display pests are always an issue. Textiles are the targets of three main types of pests, carpet beetles, clothing moths, and firebrats and silverfish. The majority of the damage to textiles are done by carpet beetles and clothing moths. Immature carpet beetles feed on protein materials. This includes wool, silk, hair, fur and feather.³¹ These pests make their presence known by leaving frass--a colored, powder excrement--around infested textiles.³² These pests leave chewed holes in their wake. Clothes moths feed on protein materials as well. The larvae feed on soiled woolens, which are usually in abundance in museums. These moths leave behind silky white cocoons in their wake. These cocoons are often the first sign of infestation and can help identify the problem.³³ The final pests are not as common when it comes to textiles. Silverfish and Firebrats are usually found around books. However, any garment that has sizing or starchy glue becomes their target. These insects are small and are identifiable by their scaly appearance and pinchers on their tails.³⁴

Pest prevention is always better than treating after the fact. In museums the key to prevention is good housekeeping. Keeping the

³¹ "Integrated Pest Management Manual: Museum Pests"

³² Fahey

³³ Ibid.

³⁴ Ibid.

museum clean of plant and food material, as well as a water supply can deter pests from infesting your museum. However, pests cannot always be deterred. In the event that textiles are infested, there are ways of getting rid of harmful insects. Chemicals are never a good idea as they can cause more damage to the textile than the pest. Many museums have started using a freezing process to rid textiles of their infestation. As soon as the infestation is seen the textile, and all others that could also be contaminated, should be sealed in individual plastic bags and all excess air vacuumed out.³⁵ The bag should then be placed into a freeze; an inexpensive household freezer works fine, at a temperature below negative five degrees Fahrenheit. The National Parks service cites six to ten days as a sufficient time for freezing.³⁶ This process might need to be repeated as many pests have the ability to adjust their body temperature according to their environment. To help with this problem the freezing process should also be carried out in warmer times of the year so that the temperature changes are fast and extreme.³⁷ This process should only be used if an infestation is

³⁵ Fahey

³⁶ “An Insect Pest Control Procedure: The Freezing Process,” National Park Service, 1.

³⁷ Fahey

confirmed. Freezing rapidly and often can cause damage to some materials.

Many would not classify mold and mildew as a pest but in museums they can be a real problem and potentially ruin textiles just as insects do. Just as the environment affects other agents of deterioration changes in the environment a textile is stored or displayed in can cause the textile to become a carrier of mold. Microorganisms are more likely to grow in natural fibers, however all fibers will support microorganism growth. Drastic changes in temperature and relative humidity can cause textile fibers to dry out and absorb moisture quickly causing swelling and cracking.³⁸ The presence of mold and mildew will usually be smelled with a musty odor, but if not caught in time it can cause permanent staining from the growth.³⁹ Staining from mold is almost impossible to remove. The best way to prevent the growth is to keep textiles away from water, and ensure that the museums HVAC system is properly controlling the temperature and the relative humidity.

³⁸ “Causes, Detection, and Prevention of Mold and Mildew on Textiles,” National Park Service, 2.

³⁹ Fahey

When textiles are not in storage and on display many of the same rules of storage still need to be followed. However, a few other guidelines should be kept in mind when displaying. Smaller textiles such as embroidered samples and flags should be kept behind UV protected glass.⁴⁰ This ensures that the textile is protected from harmful light as well as pests. Separating textiles from potentially harmful materials can ensure that the textile will not be harmed while on display. Sara Wolf of the National Park Service suggests separating textiles from those other harmful materials, such as polished wood, by placing a thin Mylar sheet between the textile and other object.⁴¹ Finally, it is important that no matter how impressive or cool the textile is it should not be displayed if it is in too fragile of a state.

Textiles are an important part of any collection. This broad term encompasses everything from rugs to dresses. Each textile requires special care and handling to ensure it remains in good condition. Whether your collection consists of wool uniforms or Native American woven blankets, it is important that you know the ins and outs of textiles before storing or displaying any textile.

⁴⁰ Fahey

⁴¹ Wolf, 28.