MUSEUM TEXTILE SERVICES

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Andover Figures

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Fig. 1. Shaker Vest

Front and back cover: Detail of the flag of the U.S.S. *Missouri* during conservation.

Letter from the Director

September was always my favorite month. The weather is perfect, tomatoes and corn are ripe, and the summer tourists are gone. Even as a student I looked forward to heading back to school with new clothes and school supplies.

September also means releasing the annual MTS Magazine and taking time to appreciate all of our team's accomplishments from the past 12 months. We are coming off of our busiest year ever, thanks in great part to the record numbers of individuals who sought help preserving their heirlooms, antiques, and collectibles. We assisted several of our local museums in preparing for MassFashion, the collaborative celebration of fashion in Massachusetts. Many college and university colleagues also reached out to us in 2017/2018, including the United States Naval Academy, Bates College, Amherst College, Bowdoin College, University of Wisconsin at Madison, and Harvard University.

We could not have succeeded without our talented and creative staff. Conservator Morgan Carbone took on additional project management and supervisory responsibilities, along with teaching and publishing. Technician Gretta Hempelmann spent an entire year applying her fashion history knowledge to conserving and mounting period costume. Courtney Jason returned with aplomb to carry us through our many stabilizing, mounting, and framing projects. Our intern Sarah Stebulis was more than an extra set of hands, stepping in at key moments with enthusiasm.

We also said good bye to the wonderful Kathy McKenna, who over the course of her two years with us developed the administrator position into a vital part of the MTS customer-service experience. We wish Kathy luck in her new home and future work. Leah Rafaela Ceriello came in with an extensive arts-management background and has expanded the administrator's job with her technical and design skills, not to mention her bubbly personality.

Nowadays, I've traded my appreciation for school supplies for a penchant for office supplies, but my love of September is eternal.

Fig. 2 opposite page. Ch'ing dynasty roundel.


Argillaceous Slate.
STATE LINE.
WILLIAMS COLLEGE.
Limestone.
Saddle Mt.
Limestone.
Gneiss.
Hornblende Slate.

A NATURAL LEGACY

On Monday, June 11th, 2018, Museum Textile Services director and chief conservator Camille Myers Breeze attended the opening of the long-awaited new exhibit at the American Folk Art Museum called *Charting the Divine Plan: The Art of Orra White Hitchcock (1796–1863.)* Curated by the museum's acting executive director as well as deputy director for curatorial affairs and chief curator Stacy Hollander, the exhibit unites nearly all of Orra White Hitchcock's cotton classroom charts along with manuscripts, botanical and zoological samples, and fossils.

Orra White Hitchcock was one of the earliest documented female botanical and scientific illustrators in the United States. Born in 1796 in the western Massachusetts town of South Amherst, Orra married Edward Hitchcock, a pastor, geologist, professor of chemistry and natural history, and future president of Amherst College, on May 31, 1821. Immediately upon completion of her formal education, Hitchcock began teaching at Deerfield Academy, a school for ladies located 25 miles from her home. The diverse subjects she taught included fine and decorative arts, mathematics, botany, and astronomy.

Orra and Edward likely met between 1816 and 1818. Edward was headmaster at Deerfield and actively conducting field studies of local botany and mineralogy. Orra is described by author Elizabeth Farnsworth as "Fearless...She did not limit herself to the most traditional role of wife and mother, but became an equal and complementary partner to the brilliant and complex Edward…Although she did not exhibit her work, it became known to contemporary scientists including Benjamin Sillman, John Torrey, and Chester Dewey."

The Hitchcocks collaborated on Edward's geological publications as early as 1822. The couple settled in Amherst, Massachusetts, in 1826 and Edward began teaching chemistry, natural history, and "natural theology" classes at Amherst College. In addition to her increasingly well-known works of art on paper, Hitchcock started to create painted cotton textiles depicting geological and zoological subjects. These classroom charts were used by Edward and his colleagues as teaching tools. Sixty-one of the classroom charts survive in the Amherst College Archives and Special Collections. All but one is currently on view at the American Folk Art Museum.

In the 2011 exhibition catalog *Orra White Hitchcock: An Amherst Woman of Art and Science*, authors Robert L. Herbert and Daria D'Arienzo state that, "Orra drew her charts in ink and watercolor on canvas from about 1828 to the 1840s. The mixed media throughout include ink, ink wash, pencil,

Fig. 3 opposite page. Orra White Hitchcock, "Cross Section Across Massachusetts," classroom chart.

watercolor, and gum Arabic." The cotton plain-weave ground is heavily sized, or glazed, to give the textiles varying degrees of stiffness. We found at least two different types of fabric.

Author Tekla Harms explains in a nut shell that the challenge Hitchcock faced in making the classroom charts was "To faithfully represent what could only be imagined." "Megatherium Cuv.," for example, had to be adapted from published lithographs because it was not among the fossils in the Amherst College collection. She also ventures a guess as to the appearance of "Anoplotherium" known only by its fossilized remains.

Edward was not afraid to engage his students in geological controversies, such as the origin of the great sand and gravel deposits found throughout New England. While some believed they were caused by a Biblical-style flood, others argued they resulted from the movement of glacier ice. Likewise, Orra's depictions of megafauna like mastodon and ichtheosaurus clearly acknowledge that prehistoric animals differed from those known in her time. The couple were openly supporting a belief that the earth is dynamic and changing years before the 1839 publication of Charles Darwin's *Voyage of the Beagle* and *On the Origin of Species* (1859).

Fig. 4 left. Ornithichnite footprints based on Orra White Hitchcock's "Fossil Footprints: Ornithichnite. Hitch."

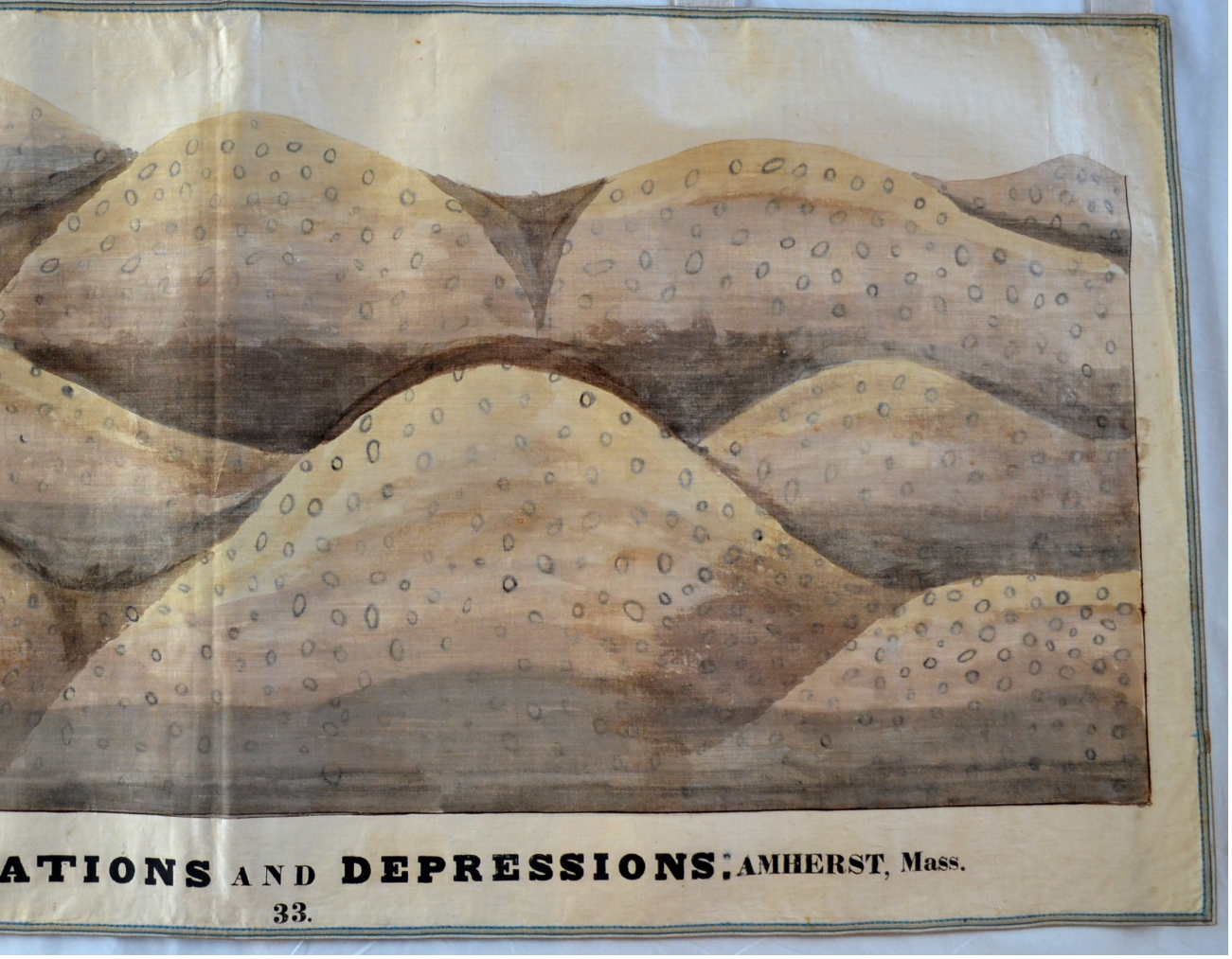

Fig. 5 above. Orra White Hitchcock, "Diluvial Elevations and Depressions" after conservation.

Fig. 6 above left. Orra White Hitchcock, "Rocking Stone, Barre" classroom chart detail of repair.

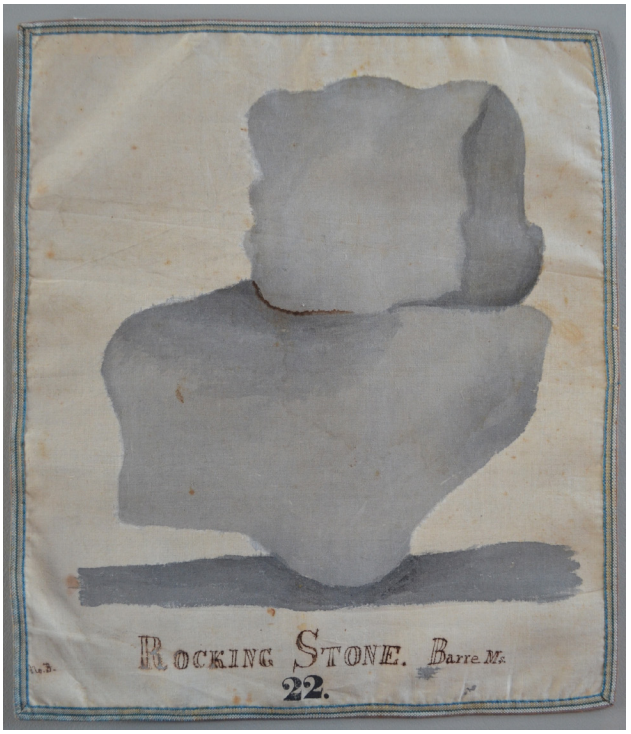

Fig. 7 above right. Orra White Hitchcock, "Rocking Stone, Barre" classroom chart after conservation.

Fig. 14 below. Orra White Hitchcock classroom charts on display in C*harting the Divine Plan*.

Fig. 13 above. “Tyrolese Alps” on display alongside manuscripts and fossils in *Charting the Divine Plan*.

Fig. 12 above. “Caricography” or study of sedge grasses. By Chester Dewey with illustrations by Orra White Hitchcock. American journal of Science and Arts, Vol. 9 (June 1825) in *Charting the Divine Plan*.

Fig. 8 left. Orra White Hitchcock classroom charts on display alongside manuscripts and fossils in *Charting the Divine Plan*.

Fig. 9 below. Detail of losses in “Plesiosaur” with support lining in C*harting the Divine Plan*.

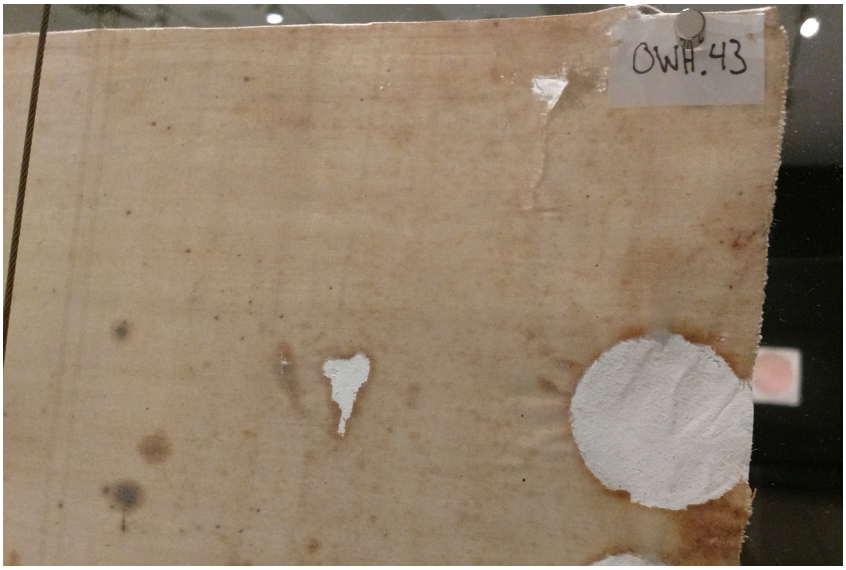

Fig. 10 above. “Nautilus Striatus” by Orra White Hitchcock beside its namesake shell in *Charting the Divine Plan*.

Fig. 11 left. MTS director Camille Myers Breeze beside Orra White Hitchcock’s “Crust of the Earth” in *Charting the Divine Plan*.

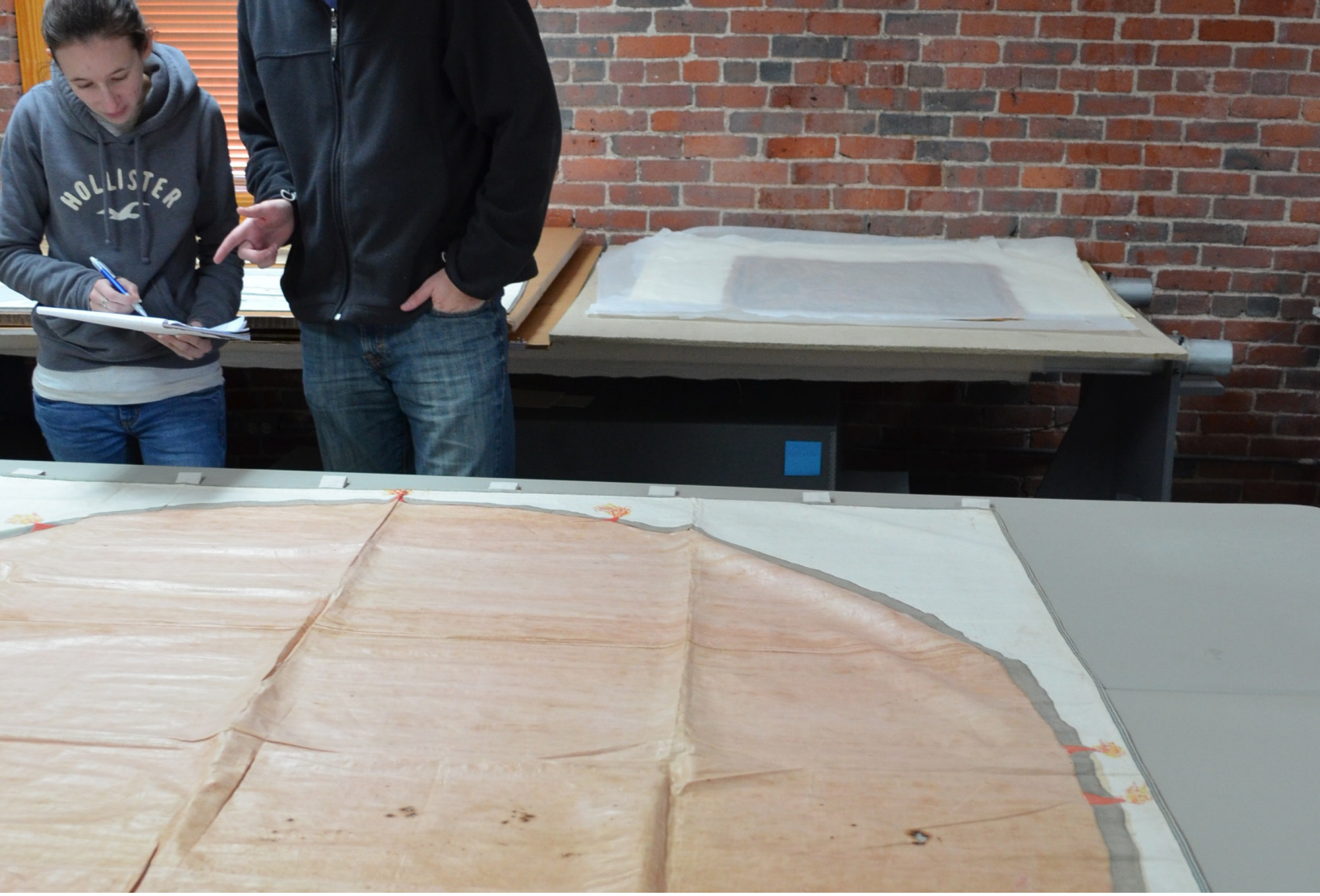

Fig. 15. Cara Jordan and Ryan Cochran examining "Crust of the Earth" in 2012.

Back in 2012, all sixty-one of the painted fabric classroom charts made by Orra White Hitchcock belonging to the Amherst College Archives & Special Collections were brought to MTS for preliminary conservation and rehousing. Intern Ryan Cochran, overseen by conservator Cara Jordan, surface cleaned and humidified each textile to reduce particulate matter and creasing. Together with conservator Courtney Jason and director Camille Myers Breeze, the team rolled twenty-two textiles and constructed custom storage trays for the remaining thirty-nine textiles. At that time, recommendations were made for additional conservation treatments to correct losses and splits.

The opportunity to address damage to twenty of the twenty-one most fragile textiles came about in 2018 when the entire collection was requested by the American Folk Art Museum for their comprehensive exhibit of watercolors, pen and ink drawings, prints, and classroom charts that Hitchcock created between 1810 and the 1840s. All were humidified and pressed where needed to reduce folds and wrinkles. Two textiles needed no further treatment and were repacked after humidification.

Four of the classroom charts had paper patches on the front that needed to be re-adhered before exhibition. Most were addressed with just a drop of liquid BEVA 371 allowed to dry beneath a

weight. Paper patches on four textiles posed enough of a risk for separation or tearing that we opted to use overlays. Undyed silk crepeline coated with a 50-50 solution of Plextol B-500 in water was cut into small rectangles and adhered to the front surface with a tacking iron set to 120 degrees Fahrenheit.

Ten textiles had splits and tears that required support from the reverse. Many of the splits coincided with areas of dark pigment or chemical burnout. The underlay material we chose is “nude” polyester organza sold by Testfabrics, Inc. in West Pittston, PA. Of ideal stability, weight and transparency, these patches do not stretch and their boundaries are not visible from the front. After testing, we elected to use 1 mil BEVA film as the adhesive. BEVA was first applied to the organza. The textile was placed face-down and patches were tacked to the back of weak areas with a Clover tacking iron set to 120 degrees Fahrenheit. The textile was placed face up again, adhesion was double checked on the front, and additional tacking was done as necessary.

Five textiles had substantial holes or tears requiring full backings to enable exhibition. The lining material we found most compatible is Holytex, a nonwoven polyester that is light-weight, stable, and resembles the classroom charts in its slightly papery behavior. 1 mil BEVA film was ironed to the Holytex. The adhesive side of the Holytex was placed over the textile and minimally tacked with a D&K tacking iron set to 120 degrees Fahrenheit. The textile was flipped face up and ironed again from the front side, through a piece of silicone-release film. Excess Holytex was carefully trimmed from the perimeter of the textiles with small scissors.

Fig. 16. Octopus based on Orra White Hitchcock's “Two Octopi.”

Fig. 17. Orra White Hitchcock, “Stratified Rocks” after conservation.

Fig. 18. “Ichthyosaurus” before lining.

The appearance of the adhesive-coated Holytex in areas of loss needed to be addressed prior to exhibition. Exposed, unspent adhesive is shiny and tacky, and can pose a risk to other parts of the textile if not properly addressed. We elected to adhere paper pulp to these bare areas. Rather than purchasing the paper pulp, we created our own by filing scraps of acid-free mat board using a stainless steel nail file. This was slow but allowed us to create an optimal color by combining more than one shade of board. The pulp was dispensed evenly onto the spot and covered with silicone release film. The adhesive was reactivated through the paper pulp with a clover tacking iron at 130 degrees Fahrenheit. Larger holes needed to be covered with pulp and heat reactivated several times in order to achieve the desired amount of coverage.

The final stage of conservation was to advise the American Folk Art Museum on safe methods of display. From the very beginning, they expressed excitement about the potential of neodymium, or rare-earth magnets, the use of which we have been developing at Museum Textile Services over the past few years. After discussing ways of camouflaging magnets with paint or fabric, the museum came up with the perfect solution. Pairs of tiny silver-colored magnets were used in plain sight, blending in with the modern support systems of clear acrylic and black fabric-covered boards.

At the conclusion of this conservation project, Museum Textile Services conservators had spent ninety-four hours assessing, testing, cleaning, humidifying, and stabilizing twenty of the sixty-one known classroom charts made by Orra White Hitchcock. To see them on display, visit the American Folk Art Museum before *Charting the Divine Plan: The Art of Orra White Hitchcock (1796–1863)* closes on October 14, 2018.

Fig. 19. “Icthyosaurus” during the infill process to tone adhesive in areas of loss.

Fig. 20. “Icthyosaurus” during the infill process to tone adhesive in areas of loss.

Fig. 21. Back of a Worth gown after conservation.

MASSFASHION

MassFashion is an exhibition bringing together eight Massachusetts museums to showcase the different facets of fashion, and how fashion connects to the modern day individual and history. Each museum has a unique exhibit relating to clothing that ranges from mid-seventeenth century to modern day. Some exhibits focus on hats and shoes, while others focus on the important individuals and events that are connected to that piece. Museum Textile Services has been busy conserving and readying pieces to be displayed for several of the museums associated with the *MassFashion* exhibitions.

Massachusetts Historical Society

Massachusetts Historical Society is exhibiting *Fashion the New England Family, 17th to 19th Century: Reuse, Refashion, Preserve, and Pass On* allowing visitors to learn about the importance of fashion in history. Many pieces were in long term storage and are being exhibited for the first time. MTS conserved five historic garments for this exhibit including Mather Byles christening cap. The exhibit opens October 2018.

Fig. 22. Conservation cleaning results on a riding jacket.

Trustees of Reservations

Trustees of Reservations is exhibiting *Leisure Pursuits: The Fashion and Culture of Recreation* displaying how people of Massachusetts participated in activities such as gardening, swimming, entertaining, fitness, and equestrian pursuits. Each of these activities required a certain dress and influenced the fashion of the time. MTS conserved several pieces for the Fruitlands Museum, a Trustees of Reservations property. This exhibit showcases what was worn for different activities, and closes March 24, 2019.

Fig. 23. Dusk at the Fruitlands Museum, Harvard, MA.

Each exhibit is a unique and fantastic opportunity to learn about fashion, history, and the local connections to Massachusetts and the New England area. Clothing connects us all, be it artistically or functionally, we are all impacted by this industry. Concord Museum, Fuller Craft Museum, Historic New England, the Massachusetts Historical Society, the Museum of Fine Arts, Boston, Old Sturbridge Village, the Peabody Essex Museum, and The Trustees of Reservations are exhibiting this connection through *MassFashion*. Check out all the current and upcoming exhibits from each museum that is participating in this collaboration.

Fig. 24. Riding jacket before conservation.

Fig. 25. Riding jacket after conservation.

Fig. 26. Morgan Carbone with a purple tea gown on exhibit at Fruitlands Museum.

Fig. 27. Sarah Stebulis with a riding jacket on exhibit at Fruitlands Museum.

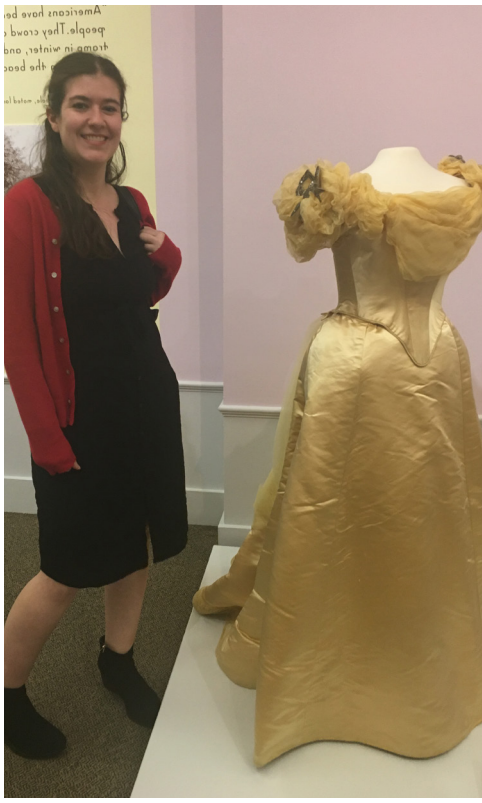

Fig. 28. Courtney Jason with a Worth gown on exhibit at Fruitlands Museum.

MTS TIP: DISPLAYING HISTORIC COSTUME

Padding out any manikin or dress form to a correct historic profile is easy when you have the right materials. Take a pair of panty-hose and remove the cotton gusset. Slip them over the neck of the form and pull the waist band down to the hips. Using an archival padding material such as polyester batting, nylon tulle, or acid-free tissue, create the appropriate shape. By cutting the feet off of the hose, you can also make soft, supportive arms of any length for the garment. For more information on displaying historic costume, please visit the MTS Costume resources page here.

OUT OF ANTINOÉ

One of the most anticipated projects to take place at Museum Textile Services in 2018 was the conservation of twenty-three archaeological Coptic textile fragments from the collection of the Bates College Museum of Art in Lewiston, Maine. Originating from Antinoé, Egypt, these 1500-year-old textiles once belonged to the artist Marsden Hartley, who was inspired by their design and colors. MTS director Camille Myers Breeze first assessed the collection in 2006, and treatment was finally realized thanks to the persistence of museum curator Bill Lowe and generous grants from the Coby Foundation and the Henry Luce Foundation.

Marsden Hartley (1877–1943) was an American modernist painter born in Lewiston, Maine. In 1951, heirs to the artist's estate donated the remaining contents of his Corea, Maine, home studio to Bates College, in compliance with his wishes. The gift included 99 sketches, three oil sketches, and over 250 personal objects now belong to the Marsden Hartley Memorial Collection and Archive. Hartley clearly drew inspiration from this collection, including his Coptic textiles.

The Coptic Period in Egypt refers to the centuries between the time of the Pharaohs and the Muslim rulers (roughly the 3rd through 7th centuries C.E.). Alexander the Great had conquered Egypt in 332 B.C.E. bringing new technologies to Egypt including tapestry weaving, new types of looms, better breeds of sheep, and classical iconography. There was not only a shift in leadership in this period, but also a shift in religion. Egypt was converted to Christianity in the first century C.E. These developments influenced the imagery woven into their textiles.

Fig. 30. Portrait of Marsden Hartley

Everything we know about Coptic textiles comes from the thousands of textile fragments excavated in the late 19th and early 20th centuries from cemeteries, monasteries, and other sites in Northern Egypt. Their survival can be credited to the arid climate, as well as to changes in ancient burial traditions. The ancient practice of mummification was simplified— the desiccated body was dressed in their finest clothes, enshrouding in linen, and buried more in keeping with Christian practices. Preservation levels seen in Egypt are matched in very few places around the globe, notably the desert coastline of Peru and Northern Chile, and parts of China such as the Gobi desert.

Fig. 29 opposite page. Coptic textile fragment after conservation.

Fig. 31. Coptic textile fragment after conservation.

Based on the iconography of the Bates College Coptic collection, scholars have suggested that they are among the large numbers of artifacts excavated by Albert Gayet (1856–1916). Gayet began excavating at the Coptic necropolis in Antinoé (modern day Antinopolis) beginning in 1896. He brought his discoveries to France where he sold them to collectors. The Bates College Coptic textile collection was acquired by Hartley through Dikran Kelekian, a well known collector and dealer. Kelekian and his son Charles sold batches of Coptic textiles to museums, colleges, and artists around the US, including the Metropolitan Museum of Art and Wheaton College.

The Wheaton College collection of Coptic textiles was conserved by Museum Textile Services in 2006. Many of Kelekian's Coptic textiles were reassembled with adhesive and sandwiched between small pieces of glass taped at the edges before being sold.

The textiles were divided into three categories based on their stability, the presence of adhesive from an early 20th-century treatment, and degree of soiling. Ten textiles were identified as low-intervention, meaning they were sound and had no soiling of concern. Eight of them needed only surface cleaning with a high-efficiency filtered vacuum and micro-vacuum attachment. Two of them were sufficiently soiled that conservator Morgan Carbone flushed them with deionized water on the suction table.

Nine of the textiles were categorized as medium intervention. They were characterized by a large amount of adhesive residue on the reverse and moderate soiling. Seven of these textiles needed to be moistened with deionized water to soften the adhesive and allow it to be reduced mechanically with a micro spatula and tweezers. All of the textiles were then flushed with deionized water on the suction table.

Four textiles were categorized as high intervention, three of which were adhered to linen backings. After adhesive reduction and suction cleaning, all four fragments needed to be hand stitched down to a new backing fabric to preserve their structural integrity. One of the textiles was reunited with its earlier wool backing fabric, stitched to new cotton fabric, and also overlaid with net. Three textiles were found to be weak enough that we opted to

Fig. 32. A stitch diagram is provided to the client in the event that our treatment needs to be reversed for study or further conservation.

Fig. 33. *Painting No. 48* by Marsden Hartley.

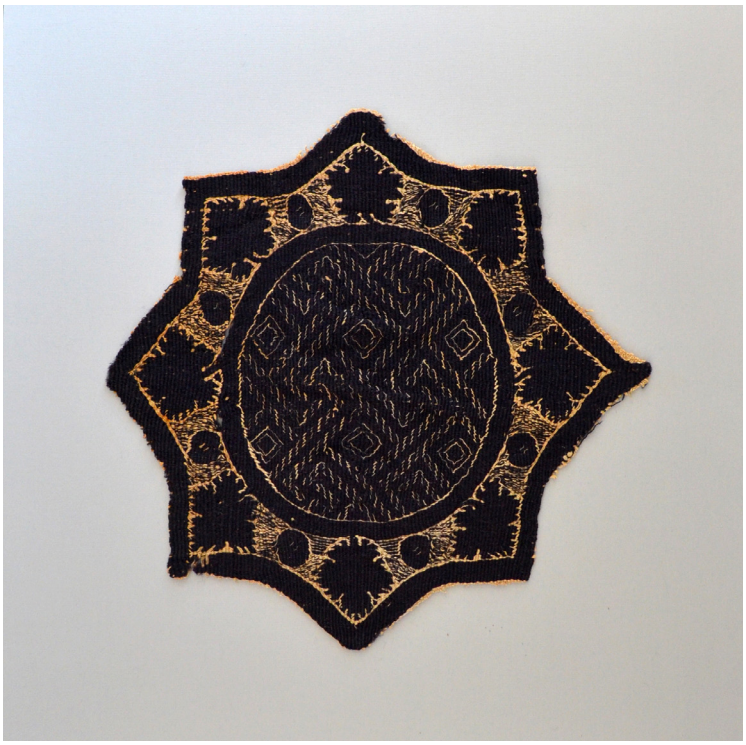

Fig. 34. One of Hartley's Coptic textiles.

overlay them with sheer nylon net to prevent against fiber loss and minimize the amount of stitching we needed to take through the remaining adhesive deposits.

An inherent part of the stabilization plan are the individual mounting boards Museum Textile Services constructed for each textile. Made of acid-free eight-ply mat board, each board was covered in grey cotton poplin adhered on the reverse with BEVA film. The ten low-intervention textiles sit passively on their boards with no mounting stitching, leaving both sides available for future study. The nine medium intervention textiles were sufficiently weak that they needed to be hand stitched to their fabric-covered mounting boards. After the four high intervention textiles were lined with new cotton, they were also hand sewn to individual fabric-covered mounting boards.

Thanks to the foresight of Marsden Hartley, these twenty-three textiles are cherished by the Bates College Museum of Art, which is proud to continue exhibiting them in their newly conserved state.

Fig. 35. Coptic textile fragment after conservation.

Fig. 36. Coptic textile fragment during conservation.

Fig. 37. Morgan Carbone was the project manager and lead conservator for the Bates College Coptic textile project.

Fig. 38. Front view of the mystery textile before conservation.

WHERE IN THE WORLD?

Museum Textile Services recently received a mysterious textile from the Wheaton College permanent collection that was in need of conservation. Donated in 1997 by Madeline Hunter Farnsworth, a member of the Class of 1937, there was no historical information provided.

The 28-by-23-inch Wheaton embroidery features six riders on horseback carrying standards. Behind each rider is a vertical shape with diagonal lines branching off of it, which is echoed in the bands of embroidery running down the sides. There are two rows of smaller figures holding rifles and a row of small horses in the foreground. Nine embroidered "Xs" dot the top edge and a wide row of repeated designs anchors the embroidery.

The ground textile is a hand-woven, weft-faced tapestry with white cotton warp. The center of the woven textile has fine red wool weft. Borders of tan cotton weft line the top and bottom, where the edges are rolled to the back and stitched. A blend of thick cotton and wool yarns are used to embroider the designs in satin and chain stitches.

Dating the textile proved easy because of the extremely bright pink, blue, and green yarns used for the embroidery These shades are recognizable as aniline dyes likely dating to the middle of the 20th century, more specifically the 1960s or 1970s. Figuring out what part of the world the textile comes from was much more difficult. The materials and technique of embroidery are quite universal, so we went with our gut instinct and started our search in the Middle East.

The colors and designs reminded us initially of Afghani war rugs that date to the 1960s and 70s. While the imagery is somewhat similar, the Afghani war rugs are much more detailed than the Wheaton College mystery textile. The figures have more articulated faces and the guns are much more detailed. The biggest difference between the two types of textiles is that the Afghani rugs are piled while the mystery textile is a flat weave with embroidery.

Fig. 39. Example of an Afghani war rug.

Fig. 40. 20th century Guatemalan embroidered textile.

Fig. 41. Detail of a 19th-century embroidered Textile from Anafi, Cyclades, Greece.

Leah Niederstadt, curator of the Wheaton College permanent collection asked the opinions of other art historians and experts about the origins of this textile. The fine red tapestry ground is reminiscent of pre-Columbian textiles, however the dyes are modern. Many thought it could be Scandinavian or Swedish due to the horses. The book Swedish Textile Art features a flat weave textile with a horse and a side facing rider. The color palette seemed to coordinate with the mystery textile. The major difference is that the Swedish designs are part of the weave structure rather than embroidered. Also, there is no published evidence of guns being in the Swedish design lexicon. Guatemalan embroidered textiles also bear a strong resemblance in color and style.

One art expert thought that the textile might be Greek. We looked to Greek textiles from the 19th and 20th centuries and found many similarities to the mystery textile. Further searching uncovered nearly identical textiles from Crete! They feature bright synthetic dyes, a mix of cotton and wool embroidery threads, red and beige flat weave grounds, chain stitch embroidery, and identical horses, riders, guns, and flags. The art of traditional weaving in Crete is still taught, and efforts are underway to create a weaving economy. Few of these textiles exist in museums in the US, but appear to be popular among tourists visiting Crete.

This textile was cleaned, stabilized, mounted, and framed so that it can be safely exhibited in the future. We hope that Wheaton College students can do more research and uncover how and when this textile was brought into their collection.

Fig. 42. Back view of the mystery textile before conservation.

A FRESH START

Four trapunto quilts arrived at Museum Textile Services in the winter of 2018 for conservation. Three belong to Hammond-Harwood House of Annapolis, MD, and a fourth was being donated to the New England Quilt Museum, in Lowell, MA. These wonderful examples beautifully showcase this historic style of quilting that was popular in America in the mid-nineteenth century. The quilts varied in condition, but were all treated in a similar way and exhibit a wide spectrum of this style of whitework.

Trapunto quilting is also known historically as stuffed quilting, whitework quilting, or corded quilting. The names accurately describe the technique used to make these labor intensive quilts; *trapunto* in Italian means "to embroider," and in Latin it means "to prick with a needle." In this quilting technique, 2 to 3 layers of cotton or linen fabric are sandwiched and sewn together. Once sewn together, the artist would hand quilt or embroider a design over the entire quilt. Many of these designs were available as a pattern, or could be created completely by the artist.

Similar to other textile art such as mourning pictures, images quilted in these such as urns, cornucopias, and flowers hold symbolic meaning and can tell a story. Traditionally, the threads would be moved aside with a needle from the back of the quilt and tiny amounts of stuffing or cording was pushed into the voids made by the quilting pattern. This created a raised effect that was beautiful, yet subtle. Once an area was stuffed to satisfaction, the threads at the back that had been moved aside were again worked back together to make the entry area invisible. One of the Hammond-Harwood House trapunto quilts has a more delicate backing fabric, which allowed it to be more easily stuffed.

This style of quilting is believed to have originated in Sicily in the the 14th century, and continued to be popular across Italy and Europe through the 18th century. Immigrants brought the technique to America with them and it enjoyed popularity from the early 19th century, peaking mid-century. It became less common by the 20th century, as it was so time consuming and the country was being vastly changed by the industrial revolution. The trapunto quilt belonging to a private collector is a fine example of one made in America in 1823 and prominently has the name "Elizabeth North" across the top, possibly having been made for her as a wedding gift. It also features two urns and a cornucopia overflowing with flowers. We temporarily netted all four trapunto quilts before wet cleaning and bleaching them to reduce discoloration.

Fig. 43. Trapunto quilt during sodium borohydride treatment.

Sodium borohydride is the bleaching agent of choice at Museum Textile Services. As cellulosic textiles age, hydroxyl groups (-OH) are converted to carbonyl groups (=O), which contribute to a dingy brown or yellow color. The chemical process known as reduction adds electrons to the cellulose fibers, stabilizing their molecular weight and returning carbonyl groups back to colorless hydroxyl groups. The combination of dissolved soils and cellulosic degradation often turn the wash bath the color of strong tea. The reaction of the sodium borohydride with water is also produces hydrogen gas bubbles, and the bath may give off a smell reminiscent of sulfur or chlorine. It is important to agitate the sodium borohydride wash bath regularly to allow all sides of the textile to come in contact with the surface of the water where the chemical reaction is taking place. Especially dirty whitework quilts receive additional baths with a solution of the anionic surfactant Orvus, before being rinsed and air dried under a cotton wicking cloth.

Cleaning discolored textiles is always rewarding, and restoring the legibility of these three-dimensional trapunto quilts is no exception. Viewers will enjoy seeing the results of conservation when the quilts are exhibited in their museums.

Fig. 44. Damage to this trapunto quilt clearly shows the thin backing fabric through which the cotton batting was originally stuffed.

Fig. 45. Detail of a trapunto quilt after conservation and bleaching.

Fig. 46. A trapunto quilt after conservation and bleaching in the MTS studio.

Fig. 47. Detail of soil removal from a trapunto quilt during sodium borohydride treatment.

MTS TIP: QUILT STORAGE

Quilts and other multilayered textiles should be folded, not rolled, to prevent wrinkling and compression of the many delicate layers. For more information on archival storage for flat textiles, please visit the MTS resources page here.

HISTORY REDISCOVERED

On December 4th, 2017, Camille, Morgan, Courtney and Gretta traveled to Annapolis, MD, to spend the week at the United State Naval Academy Museum. Our work involved five of the 41 cases of trophy flags captured by the US Navy dating from as early as the War of 1812. The collection was restored in its entirety in 1912–1913 by Amelia Fowler and her team of 50 women, which is the only reason it was stable enough to withstand more than 100 years of continuous display in less-than-ideal conditions.

On Monday we flew to Baltimore and headed to the campus of the United States Naval Academy. After being cleared to enter the yard, we made our way over to Mahan Hall, where the trophy flags were displayed and where we would be working. After watching the drama that played out as glass cutters begin their arduous task, we begin removing flags from their cases. With the help of museum Managing Director/Supervisory Museum Curator Charles Swift, the first panel of flags was tipped forward out of the case, and we could begin removing tacks.

As soon as the panel was tipped forward, we could see that there was a second layer of flags hanging on the back of the case. As we expected, we found ten Spanish flags put on display in 1913, which had been hidden from public view since around 1920. Our scope of work for the week immediately switched to Plan B: deinstall only as many flags as we could safely document, surface clean, pack, and transport to the museum storage facility during the course of the week.

Courtney and Gretta got to work in the adjacent auditorium taking initial photographs and confirmed measurements. Camille Breeze consulted with museum staff and made the decision to remove modern ropes that had been sewn to each flag in 1913 when they were briefly suspended from the ceiling of the auditorium. The majority of our time was spent vacuuming the flags before rolling them on themselves with interleaving tissue and wrapping them for the short term in polyethylene sheeting.

Morgan Carbone took charge of documenting, deinstalling, and rehousing the smaller flags found at the back of three cases. She was helped by Charles Swift, Senior Curator Tracie Logan, and Exhibit Specialist Bill Rogers. By Thursday afternoon we were ready to tackle case 32. It contained the British Royal Standard captured on April 27, 1813 from the Parliament House in York, Canada, now Toronto.

It took 8 people, including two midshipmen and a professor, to lift the flag out of the case and over the brass

Fig. 48. The two Korean command flags were captured in 1871 near Inchon, Korea, by the Navy's Asiatic Squadron. One depicts a winged snake and the other a dragon.

railing to clean plastic on the floor. The flag weighed approximately 200 pounds with all of the linen support fabric and ropes attached by Mrs. Fowler in 1913. Measuring 24 by 29 feet, it is also by far the largest flag ever treated by Museum Textile Services. We finished vacuuming and rolling of the Royal Standard Friday afternoon, which was a timely pinnacle to our trip.

By the end of the week, the team had deinstalled and relocated a total of 35 trophy flags from Mahan Hall to the adjacent museum building. But two more cases remained to be deinstalled, so our team returned to Annapolis at the end of February, 2018. This week was less stressful because the glass was already removed from the cases. However we encountered evidence of last insect infestations in the two remaining cases, which sadly had damaged some of the flags. What saved them from disappearing to dust was Amelia Fowler's 1913 restoration. The linen linings and support stitched meant that no weight was placed on the original flags themselves, so gravity did not exacerbate the strains put on the flags in the intervening century.

Fig. 49. Camille Myers Breeze and Morgan Carbone assessing a hidden flag.

After all five cases were deinstalled, the fun work of conserving a handful of flags for display in the Naval Academy Museum began. The museum staff chose two Korean flags and a Chinese pirate flag that had been hidden at the back of Case 29. In addition, two other flags from the museum's collection were transported to MTS for treatment: the Jack of the USS Missouri, and a banner commissioned by none other than Stephen Decatur, one of the fathers of the US Navy.

We are truly honored to have been chosen by the United States Naval Academy Museum to collaborate on this historical flag conservation project. We look forward to more opportunities to assist with opening the remaining flag display cases.

Fig. 50. Removing the Royal Standard from its display case.

Fig. 51 below. Morgan Carbone (center), Courtney Jason (right), and Gretta Hemplemann (left) performing conservation on flags at the United States Naval Academy, Annapolis, MD.

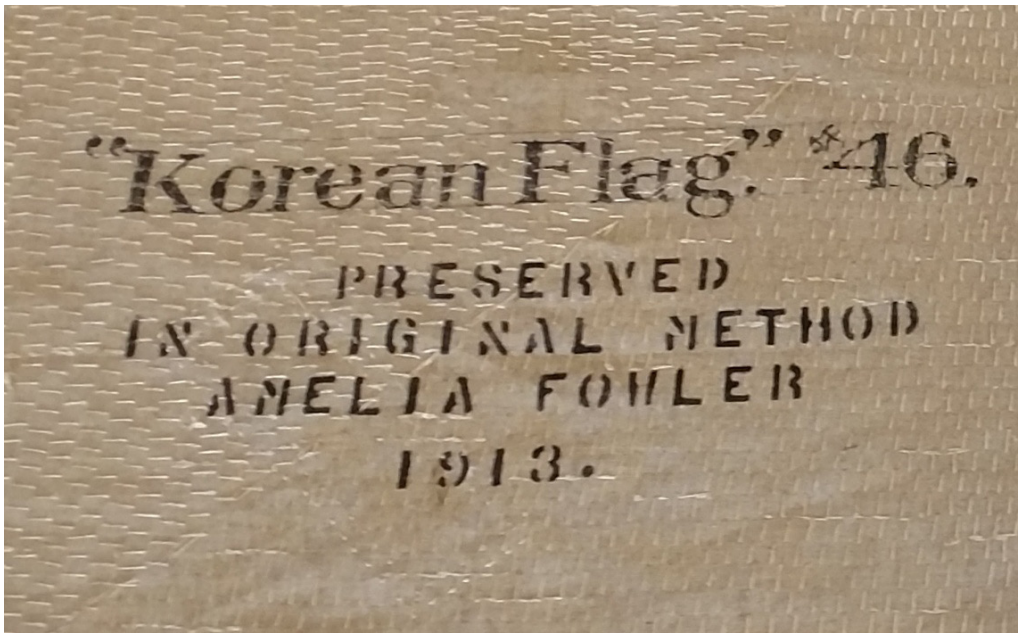

Fig. 55. Amelia Fowler stamped her name, the date, and an ID number on the linen lining fabric of every flag she conserved for the Naval Academy.

Fig. 54. "The One or the Other" flag commissioned by Stephen Decatur to make clear his ultimatum to the Barbary leaders in Algiers, Tunis, and Tripoli during his 40-day Mediterranean assault in the Second Barbary War (1815–1816).

Fig. 52 above. Historical photograph of the USS Missouri flying the flag conserved by MTS (see cover image.) The Missouri served in the Pacific during WWII and is famous as the site of the surrender of Japan that concluded the war. Courtesy of United State Naval Academy Museum.

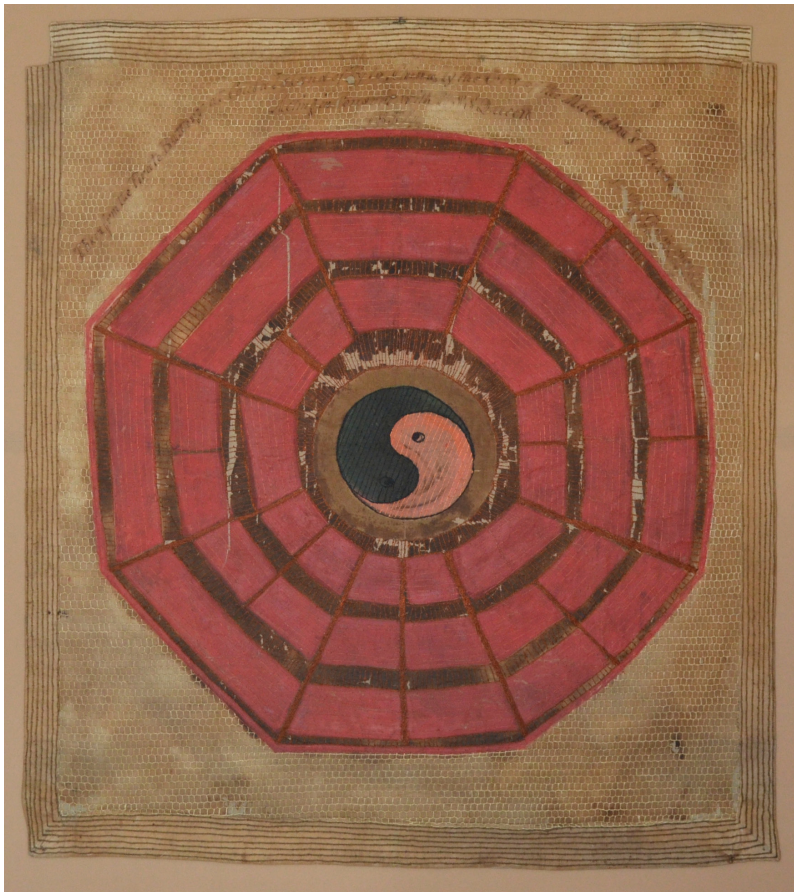

Fig. 53. In 1854, Navy lieutenant George Henry Preble captured this flag from Chinese pirates during a multi-national attack on Tylo Island.


NEWPORT
S. INTREPID
APR. 26, 1943

INTREPID BEGINNINGS

One of the most unique and complex artifacts ever conserved at Museum Textile Services arrived last winter via art courier from the Intrepid Sea, Air & Space Museum. Consisting of a narrow neck of foil-covered glass wrapped in silk ribbons with a torn rayon mesh pouch, the remains of the *Intrepid*'s christening bottle have miraculously survived for 75 years.

Discolored from oxidation and wrinkled from storage, the silk ribbons tell the story of the *Intrepid*'s origins. The white ribbon reads "APRIL 26, 1943," the date the carrier was christened amidst wartime restrictions. The letters "N.N.S. & D.D.Co" stand for the Newport News Shipbuilding and Dry Dock Company, where her keel was laid on December 1, 1941. The red ribbon gives the name "U.S.S. *INTREPID*" and its port of origin, "NEWPORT NEWS. VA." The blue ribbon is unembroidered.

The retired aircraft carrier is a familiar feature along New York City's West Side Highway, where it has served as a tourist destination since 1982. Over one million visitors visit the Intrepid Museum each year to experience its exhibits, which include the Cold War submarine *Growler* and the space shuttle *Enterprise*. Camille, Morgan, Courtney, and Gretta had a behind-the-scenes tour in January 2018, including parts of the carrier not open to the public. Below decks appear unchanged from decades past, and feature unique sailor art applied to the ship's walls by its crew and other art made by seamen.

Interest in conserving and exhibiting the christening bottle grew during preparations for the *Intrepid*'s 75th commissioning anniversary. Additionally, a scrapbook was brought to the attention of the museum staff that belongs to the grandson of the wife of Vice Admiral Howard Hoover (1887–1970). The book contains official Navy photographs and newspaper articles related to the *Intrepid*'s christening by none other than Vice Admiral Hoover's wife Helen Braconier Smith Hoover (1896–1981.)

The christening ceremony was not unlike a wedding ceremony. Mrs. Hoover was the official sponsor and her daughter Jeanne Hoover was the maid of honor. Joining them on the sponsors' platform were two matrons of honor, Mrs. Shepler Fitzgerald and Mrs. Robert Kirkpatrick, both of Washington. Captain Clinton A. Neyman, senior chaplain of the Norfolk Naval Operating Base, delivered an invocation. Breaking the christening bottle proved to be a difficult task for Mrs. Hoover. On the third try, the glass bottle broke against the *Intrepid*'s keel in a dramatic shower of bubbles. Shortly after the ceremony, the carrier was towed from the dock to a fitting-out berth where final preparations were made to join the WWII fleet.

Fig. 56 opposite page. *Intrepid* christening bottle before conservation.

Fig. 57. Mrs. Kirkpatrick, Mrs. John Howard Hoover, Miss Jeanette Hoover, and Mrs. Fitzgerald during the christening of the *Intrepid*.

The priorities for conservation were to stabilize and support the disparate elements after attempting to reduce creasing and discoloration. When the champagne bottle was smashed in 1943, the textile materials were saturated, especially at the lower extremes. The resulting oxidation had stained the fabrics brown and contributed to accelerated deterioration. The blue and red ribbons had many splits and losses, however the white silk ribbon was in much better condition. The rayon mesh pouch was torn at the bottom where the broken pieces of the bottle were removed.

Conservators Camille Myers Breeze and Morgan Carbone first moistened the ribbons and mesh pouch with deionized water. Repeated blotting with Polistini Tek-wipe and acid-free blotter paper served to reduce some water-soluble discoloration. The elements were then aligned and allowed to air dry. When dry, the red and blue ribbons were backed with sheer polyester organza using 1 ml BEVA archival adhesive film using a warm tacking iron. The organza was cut to the original shape of the ribbons. Parts of the organza where no original ribbon remained needed to be addressed, as areas of unspent adhesive were shiny and slightly tacky. Fragments of red and blue silk from the MTS study collection were ground up to create silk dust. The silk dust was heat set to the adhesive using the technique Morgan Carbone first developed for the 2017 Shirley Temple dress project. The method was adapted to use paper pulp and was equally successful in the more recent Orra White Hitchcock conservation project. The torn mesh pouch is very illustrative of the act of smashing the bottle and therefore was not repaired.

The christening bottle was returned to the Intrepid Sea, Air & Space Museum with a custom-made padded board that has a divot to support the remaining glass and sufficient space for the ribbons to be spread out for display.

Fig. 58. *Intrepid* christening bottle after conservation.

MTS TIP: WHAT IS A TEXTILE?

A textile can be defined as any fiber-based material whose flexibility comes from the interlocking of natural or man-made elements. Many artifacts treated at Museum Textile Services are composite objects with additional wood, metal, or paper components. When necessary, we work with other conservators with specialties such as paintings, book and paper, or wooden artifacts. If you are looking for a conservator, you can find a list of peer-approved professionals at www.conservation-us.org/membership/find-a-conservator.

Fig. 59. Camille Myers Breeze and students at the Logan Museum of Anthropology during the recent Introduction to Textile Conservation class at Beloit College's Center for Collections Care.

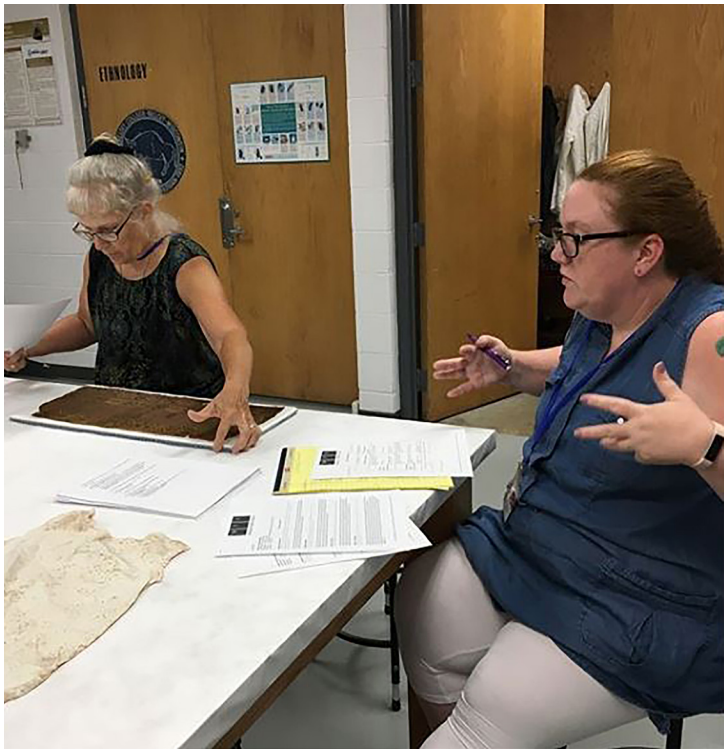

Fig. 60. Camille and students at Beloit College.

Fig. 61. Students at Beloit College.

TEACHING

Registration is still open for Camille Myers Breeze's two fall classes at the International Preservation Studies Center's new location in Freeport, IL. These and all other IPSC classes are listed on their website.

Textile Stabilization Using Sheer Overlays

Camille Myers Breeze

October 22–24, 2018

Participants will learn how to use three categories of sheer materials and, more importantly, how to determine which overlay is best for a given situation.

Displaying Historic Textiles

Camille Myers Breeze

October 25–27

Temporary display of flat textiles, such as quilts, flags, embroideries, and lace, is a challenge faced every season by museum staff. Learn what technique is best for these often fragile and large items.

INTERNATIONAL PRESERVATION STUDIES CENTER

The Center for Collections Care at Beloit College in Beloit, Wisconsin, provides important training for all current and emerging museum collections professionals. A full list of 2019 courses will be available on the Beloit College website.

Introduction to Textile Preservation

Camille Myers Breeze

July 22–25, 2019

This course will provide essential skills needed for all collections-care specialists to handle, assess, maintain, and safely house historic clothing and textiles.

Textile Stabilization and Display

Morgan Blei Carbone

July 26–28. 2019

Using the extensive collections at the Logan Museum, participants will learn safe methods of textile stabilization and create individual textile display solutions.

C3 | Center for Collections Care at Beloit College

THE MTS TEAM

Camille Myers Breeze, Director & Chief Conservator

Camille began her textile conservation career in 1989 at the Textile Conservation Workship in South Salem, NY. After earning a BA in Art History from Oberlin College, she received a MA in Museum Studies: Costume and Textiles Conservation from the Fashion Institute of Technology. She spent five years in the Textile Conservation Laboratory at the Cathedral of St. John the Divine in NYC before moving to the Textile Conservation Center at the American Textile History Museum in Lowell, MA. Camille founded Museum Textiles Services in 1999.

Leah Rafaela Ceriello, Administrator

Leah Rafaela Ceriello joins MTS as our new Administrator. She comes to us after working as a studio manager and production coordinator in the fine furniture industry. Leah recently completed her MFA in Visual Art at Tufts University and the School of the Museum of Fine Arts Boston. She frequently exhibits her work in the Boston area & abroad. In her free time, she can be found weaving and working in her studio on Cape Ann.

Morgan Blei Carbone, Conservator

Morgan Blei Carbone joined Museum Textile Services in 2015. After earning her BA in Art History from Grinnell College in Iowa, she received an MA in Fashion and Textiles: History Theory, and Museum Practice at the Fashion Institute of Technology in New York. Since working at MTS, Morgan has come to specialize in wet cleaning and bleaching, mounting and framing flat textiles, and historic clothing. She is also a volunteer with the AIC Textile Speciality group. Morgan is also an avid knitter of lace shawls and scarves.

Internships

If you are interested in observing and performing conservation treatments while gaining hands-on experience at one of the most versatile textile conservation studios in the US, we encourage you to apply for one of our Volunteer internships. For more information please visit www.museumtextiles.com/mts-internships.

Courtney Jason, Conservator

Courtney Jason has worked at MTS since 2010, when she joined us on the Thangka conservation project for the Mead Art Museum. Courtney has been a key player in many of our most important projects, with her specialities in tapestry, flags, and large-scale mounting. Courtney moved on this summer after accepting a position as a Museum Techinician at the Adams National Historic Park, in Quincy, MA.

Gretta Hempelmann, Technician

Gretta Hempelmann is a 2017 Graduate from the University of Missouri with a MA in Clothing and Textiles. She has a BA in Fashion Design and Merchandising from West Virginia University. While in Missouri, Gretta worked as a teaching assistant for the university and a research assistant in the Missouri's Historic Costume and Textile Collection. She received a certificate in 2016 for Care of Special Collections for Textiles from the International Preservation Studies Center. Gretta is now living and working in Columbia, MO.

Kathy McKenna, Administrator

Kathy McKenna came to MTS after eleven years as the Assistant Town Clerk in Andover. In addition to being a seasoned manager of large-scale projects and re-organizations, Kathy has a background in Law. Kathy recently purchased a new home in New Hampshire.

Sarah Uhlendorf Stebulis, Intern

Sarah Uhlendorf Stebulis graduated from Keene State University in 2002 with a BA in American History. She has been an interpreter, curator, museum director, freelance registrar, and participated in a collections care internship at MTS in 2018. In her free time, Sarah is a fiber junkie and enjoys sewing, spinning, dyeing wool, and weaving. She completed her internship in spring 2018.

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Figure 23. Fruitlands Museum, Harvard MA. Photo by MTS

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Figure 26. “Leisure Pursuits”, exhibition. Fruitlands Museum, Harvard MA. Photo by MTS.

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Figure 48. United States Naval Academy Museum. Photo by MTS.

Figure 49. United States Naval Academy Museum. Photo by MTS.

Figure 50. United States Naval Academy Museum. Photo by MTS.

Figure 51. United States Naval Academy Museum. Photo by MTS.

Figure 52. United States Naval Academy Museum. Photo by MTS.

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Figure 54. United States Naval Academy Museum. Photo by MTS.

Figure 55. United States Naval Academy Museum. Official U.S. Navy Photograph.

Figure 56. Intrepid Sea, Air & Space Museum. Photo by MTS.

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Figure 59. Beloit College Center for Collections Care. Photo by MTS.

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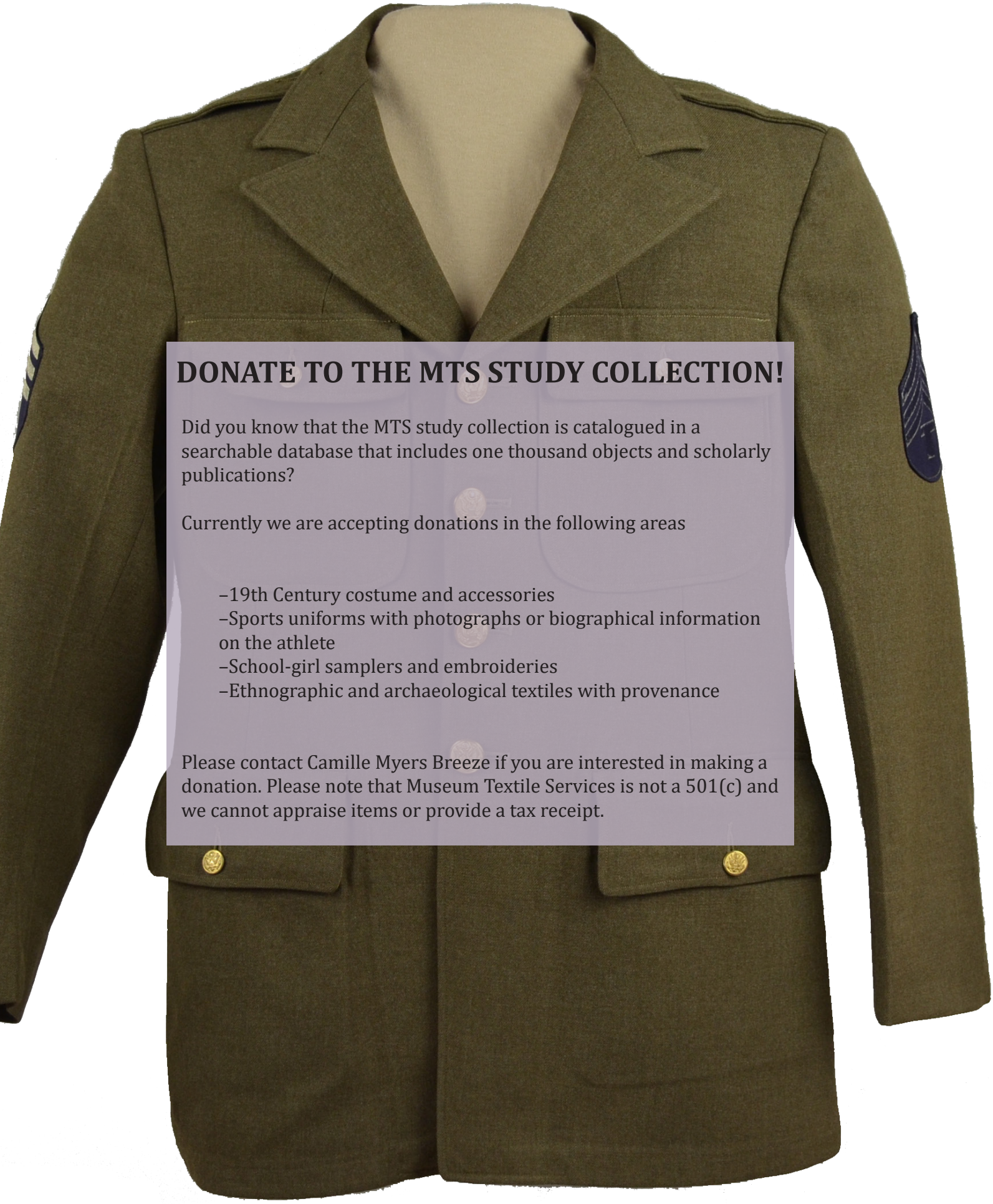
Figure 61. Beloit College Center for Collections Care. Photo by MTS.

Cover Image, front and back. Jack of the Missouri Flag. United States Naval Academy. Photo by MTS.



DONATE TO THE MTS STUDY COLLECTION!

Did you know that the MTS study collection is catalogued in a searchable database that includes one thousand objects and scholarly publications?

Currently we are accepting donations in the following areas

–19th Century costume and accessories
–Sports uniforms with photographs or biographical information on the athlete
–School-girl samplers and embroideries
–Ethnographic and archaeological textiles with provenance

Please contact Camille Myers Breeze if you are interested in making a donation. Please note that Museum Textile Services is not a 501(c) and we cannot appraise items or provide a tax receipt.