

# SO YOU WANT A REVOLUTION? AN INNOVATIVE LOW-TACK ADHESIVE TREATMENT FOR 18TH CENTURY SILK FLAGS

CAMILLE MYERS BREEZE AND MORGAN BLEI CARBONE

**ABSTRACT**—Flags and banners are our most patriotic national textiles. Often made of silk or thin wool bunting, they can be extremely fragile and require advanced conservation techniques for their preservation. American Revolutionary War–era flags are frequently painted and overpainted with oil-based, distemper, or other water-based paint that may have physically or chemically compromised the ground silk and resulted in flaking paint or loss of original material. Although 18th century silk flags may be distorted and dished from use and display, they are often in better condition than their Civil War counterparts. Museum Textile Services has endeavored to find new techniques for safely stabilizing and mounting 18th century silk flags without a full adhesive lining. Self-stenciling to apply low-tack adhesive only where needed on a sheer lining fabric is reversible, requires minimal handling and flipping of the flag, and is successful with or without an additional overlay. This article illustrates the treatment of two ca. 1780 flags conserved in 2016: the Third Connecticut flag belonging to the New-York Historical Society Museum & Library, and the Bucks of America flag belonging to the Massachusetts Historical Society. Applications of this revolutionary labor- and resource-saving treatment to the conservation of other textiles are also discussed.

## ¿DICES QUE QUIERES UNA REVOLUCIÓN? UN TRATAMIENTO ADHESIVO INNOVADOR DE BAJA TOMA PARA LAS BANDERAS DE SEDA DEL SIGLO XVIII

**RESUMEN**—Banderas y estandartes son nuestros textiles nacionales más patrióticos. A menudo hechos de seda o de lana fina, pueden ser extremadamente frágiles y requieren técnicas avanzadas de conservación para su preservación. Las banderas de la época de la Guerra Revolucionaria Americana son frecuentemente pintadas con óleos, témpera u otra pintura a base de agua que puede haber comprometido la seda físicamente o químicamente y dar como resultado pintura descascarillada o pérdida de material original. Aunque las banderas de seda del siglo XVIII pueden distorsionarse por el uso y la exhibición, a menudo están en mejores condiciones que sus contrapartes de la Guerra Civil. Museum Textile Services se ha esforzado por encontrar nuevas técnicas para estabilizar y montar con seguridad banderas de seda del siglo XVIII sin un forro adhesivo completo. El “auto-estarcido” para aplicar adhesivo de baja adherencia solo donde sea necesario en un tejido de forro es reversible, requiere un manejo y volteo mínimo de la bandera, y tiene éxito con o sin otra capa de textil sobrepuesta. Este artículo ilustra el tratamiento de dos banderas c. 1780 conservadas en 2016: la bandera “Third Connecticut” perteneciente al Museo y la Biblioteca de la Sociedad Histórica de Nueva York y la bandera “Bucks of America” perteneciente a la Sociedad Histórica de Massachusetts. También se discuten las aplicaciones de este tratamiento revolucionario que ahorra trabajo y recursos a la conservación de otros textiles.

### 1. INTRODUCTION

More flags are conserved at Museum Textile Services (MTS) each year on average than any other type of historic textile. Hailing from private collectors, government agencies, branches of the military, and museums of all sizes, flags are universally seen as important documents of national pride and personal devotion.

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Eighteenth century flags from the time of the American Revolution are rare specimens of technology, artistry, and tradition. Most have already seen the hands of conservators whose prior treatments may now be at risk of causing new damage if not reversed. In light of ongoing efforts to develop low-intervention treatments that combine longevity and reversibility, conservators at MTS recently adapted techniques used successfully for 19th century silk flags to create a new method for supporting 18th century silk flags. The following case studies show how self-stenciling was used to apply a low-tack adhesive only where needed to sheer lining fabric, requiring minimal handling and flipping of the flag.

### 2. THE BUCKS OF AMERICA FLAG

One of the best known flags of the American Revolution is the Bucks of America Flag, which is in the collection of the Massachusetts Historical Society (fig. 1). The Bucks of America was a Boston-based unit of the Massachusetts militia composed entirely of African Americans. Conservation of this irreplaceable textile was initiated after a loan request by the Smithsonian National Museum of African American History and Culture for its inaugural exhibition opening in 2016. Made of two horizontal panels of ecru silk with an inset canton of blue silk, the center of the flag contains the painted symbol of the Bucks of America—a leaping stag and pine tree. Painted above the stag is a field with the name of the unit. Below is a smaller painted field reading “JGWH” [note 1].

William C. Nell in his 1855 book (17), *The Colored Patriots of the American Revolution*, wrote that:

At the close of the Revolutionary War, John Hancock presented the colored company, called “the Bucks of America,” with an appropriate banner, bearing his initials, as a tribute to their courage and devotion throughout the struggle. The “Bucks,” under the command of Colonel Middleton, were invited to a



Fig. 1. The Bucks of America flag before conservation. Image courtesy of Massachusetts Historical Society.



Fig. 2. Detail of prior repairs to the Bucks of America flag.

collation in a neighboring town, and, en route, were requested to halt in front of the Hancock Mansion, in Beacon Street, where the Governor and his son united in the presentation.

## 2.1 PRIOR TREATMENTS

By 2015, the 105.5 cm × 161.5 cm (41.5 in. × 63.5 in.) Bucks of America flag had been pressure mounted for approximately 50 years between a felt-covered piece of Masonite and a 0.6-cm (¼-in.) thick piece of clear acrylic (Bentley 2015). The sandwich was held together with binder clips inside a heavy wood frame. The unpainted areas of the flag were still supple despite distortion and discoloration with only a few splits where the flag had been folded at some point in its past. The painted designs were in poorer condition with substantial craquelure, splits to the silk around the perimeter of the paint, and losses. At least three campaigns of treatment were evident in the painted areas: glassine adhesive patches, narrow pressure-sensitive cellophane tape, and wider tape resembling Scotch brand Magic tape (fig. 2). In some cases, fragments of painted silk had been adhered in the wrong place, were stacked on top of each other, or were upside down and backward (fig. 3). MTS conservators were able to successfully reverse these prior treatments using warm water vapor delivered through a Preservation Pencil. Loose fragments were placed temporarily onto diagrams for ease in repositioning.

Due to the overall fragility of the painted fields and the inability to stitch through them without causing further damage, a full adhesive lining seemed an obvious choice to stabilize the flag. However, unlike chemically treated silks found in Civil War-era flags, the Bucks of America silk was sound throughout the unpainted areas, making a full adhesive lining unnecessarily invasive. Furthermore, a full adhesive lining would result in unsightly, shiny, unspent adhesive showing behind the complex pattern of losses. Past attempts at using hand-drawn stencils made from flags to paint liquid adhesive onto a lining only where needed had failed due to registration errors. Complicating the decision-making process was a restriction by the Massachusetts Historical Society that no sheer overlay would be permitted in the conservation process.

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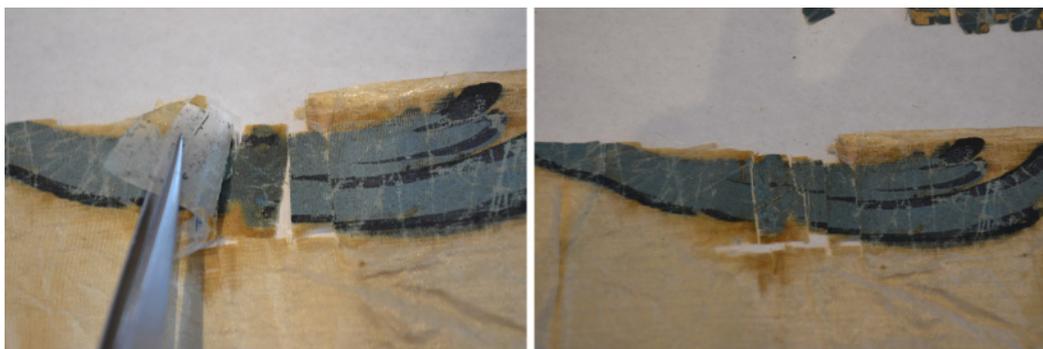


Fig. 3. Removing pressure-sensitive tape and repositioning fragments of the Bucks of America flag.

### 2.2 ADHESIVE TESTING

Two neutral synthetic adhesives in different concentrations were tested on scraps of silk crepe-line. Crepe-line was the preferred lining material over net or polyester sheer fabrics because it is a woven fabric made of the same fiber as the flag, it is readily available, and it has a low sheen. Solutions of Plectol B-500 and BEVA D8 were prepared at 12.5%, 25%, 50%, and 75% v/v with filtered water. In one set of tests, fragments of 19th century painted silk from the MTS sample collection were adhered to crepe-line while the adhesive was still wet. For the second set of tests, the adhesive was painted onto the crepe-line and allowed to dry before silk fragments were adhered to it using a tacking iron.

The desired characteristics for these test results were a low-tack bond, flexibility, minimal shine, and excellent control in application. The adhesive solution chosen was a 50% v/v solution of Plectol B-500 with filtered water. The technique found to be most successful began by painting the adhesive onto tensioned crepe-line. The 50% solution allowed extremely precise application with a minimum of wicking. When dry, the crepe-line was peeled away and flipped over to expose the smooth layer of adhesive that formed against the film. The test fragments were then adhered to that side of the crepe-line with a tacking iron through silicone release polyethylene film and allowed to cool. The resulting bond stayed intact when the test fragments were handled, yet allowed the lining to be peeled away with no damage if needed.

In the process of testing, two important discoveries were made that led to the development of a new adhesive application technique. The first was that the side of the adhesive-coated crepe-line that dried against the silicone release film should be placed against the back of the flag rather than the side to which the adhesive was applied. The second was that the adhesive could be painted onto the crepe-line over silicone release film using the back of the flag itself as a guide rather than a tracing of the flag. By self-stenciling with the flag face down, it was already in position for the adhesive lining to be applied. The flag, therefore, only needed to be flipped twice to complete the adhesive lining process.

### 2.3 HUMIDIFICATION AND REALIGNMENT

Before beginning treatment, every stage of the humidification, realignment, and adhesive lining was planned out. A piece of brown corrugated cardboard larger than the flag was covered in silicone release film. The flag was transferred onto this board, which became the bottom of a Gore-Tex humidification chamber. The flag was covered with a sheet of Gore-Tex laminated onto polyester nonwoven, positioned with the polytetrafluoroethylene membrane toward the flag. Acid-free blotter paper was moistened with deionized



Fig. 4. Conservator Cara Jordan self-stenciling the silk crepe underlay for the Bucks of America flag.

water and placed over the Gore-Tex. The humidification chamber was completed with a cover sheet of 4-mil polyethylene sealed at the edges with weights. The humidification process was checked every 15 minutes and concluded after a total of 45 minutes when the flag was perceptively damp. The flag was uncovered, realigned by hand, and allowed to air-dry flat. Areas of stubborn wrinkling—namely, the corners where the flag had been bunched up and tied—were further relaxed with a warm tacking iron through muslin, leaving ample evidence of their pattern of use. When the flag was completely dry, another board covered with silicone release film was placed on top, and the flag was flipped face down.

#### 2.4 LINING AND REPLACING LOOSE FRAGMENTS

Undyed silk crepe was taped under slight tension to a temporary stretcher made of cardboard. The stretcher was then placed over the upside-down flag with a layer of silicone release film in between. The boards were clamped together with binder clips to keep the crepe firmly in place relative to the flag. Using a fine brush, a 50% v/v solution of Plextol B-500 was painted onto the silk crepe lining fabric only in areas of paint, including the leaping stag, tree, two text fields, and the 13 gold-painted stars (fig. 4). Because crepe is transparent, there was no problem achieving detailed application. The adhesive stopped slightly inside the margins the losses in the text fields to avoid showing.

When the adhesive was dry, the crepe lining was peeled off of the silicone release film, taking great care not to let the adhesive surface touch itself. The film was removed from the flag and the crepe was positioned onto the back of the flag. The lining was carefully adhered with a warm tacking iron through a piece of silicone release film. When the flag was cool, it was sandwiched between two boards and flipped face up. The fragments of painted silk that had been set aside were flipped over and painted with the same 50% v/v

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Fig. 5. Blue Stabiltex underlays for the Bucks of America flag after (top) and before (bottom) placement.

solution of Plextol B-500 in filtered water. Each was then repositioned face up onto the silk crepeline and left to dry under moderate weight [note 2].

The Massachusetts Historical Society opted for a solid blue color-compensating fabric behind remaining areas of loss in the two text fields rather than trying to restore the missing letters. A piece of sheer turquoise polyester Stabiltex (now-discontinued) provided the best match when seen through the silk crepeline lining. Two custom-shaped underlays were created by taping Stabiltex to the center of a large piece of silicone release film, placing it over the desired areas of the flag, and carefully tracing the perimeter of each text field with the same adhesive solution used elsewhere. When dry, the Stabiltex underlays were peeled off the silicone release film and trimmed. The adhesive perimeter omitted the need for hot cutting the Stabiltex (fig. 5).

### 2.5 MOUNTING AND FRAMING

An aluminum honeycomb panel was covered with 0.6-cm ( $\frac{1}{4}$ -in.) polyester felt followed by cotton poplin. The flag was centered on the panel. While one person lifted the edge of the flag carefully with small boards, a second person reached under and positioned the two blue Stabiltex underlays before tacking them in place with the iron. The edges of the undyed silk crepeline lining were hemmed under and pinned to secure. Next, a line of stitching with Gütermann Skala polyester thread connected the perimeter of the flag and the lining below to the panel (fig. 6). Additional stitching was done throughout existing seams in the flag and along areas of weakness. The flag was given a final vacuuming before it was pressure mounted with a sheet of 0.5-cm ( $\frac{3}{16}$  in.) UV-filtering acrylic. The acrylic was screwed down into the top of the panel through predrilled holes around the perimeter. The flag was photographed, packed, and shipped to the Smithsonian National Museum of African American History and Culture, where it received a custom frame (fig. 7).

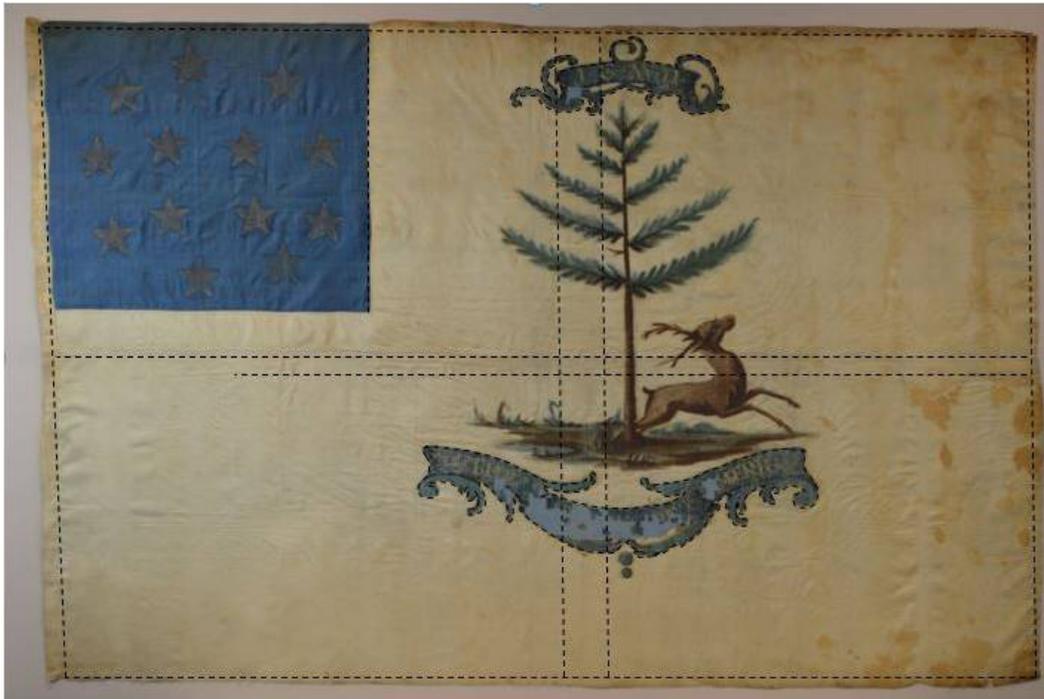


Fig. 6. Stitch diagram for the Bucks of America flag.



Fig. 7. The Bucks of America flag on display at the Smithsonian Museum of African American History and Culture.

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Fig. 8. Reverse of the Third Connecticut Regiment flag covered by silicone release film followed by silk crepeline.

### 3. THE THIRD COMPANY, THIRD CONNECTICUT REGIMENT FLAG

Just a few months later the opportunity arose to conserve a Revolutionary War-era flag belonging to the New-York Historical Society Museum and Library. The Third Company, Third Connecticut Regiment flag is made of a single piece of silk with a linen hoist binding. The two-sided painted design consists of Roman numerals “III” and a laurel wreath suspended by a red ribbon from a sword. The Third Connecticut Regiment was organized in 1777 and merged with the 4th Connecticut Regiment in 1881, providing a reliable four-year date range (Robertson 2016).

The body of the flag was mostly sound with minor losses and splits occurring where the stiff paint met the flexible silk, similar to the Bucks of America flag. One painted laurel leaf had entirely separated and was upside down and in the wrong location. Luckily there were no adhesive patches or tape to remove, though the flag appeared to have been overpainted.

#### 3.1 TREATMENT

The Third Connecticut Regiment flag was humidified and realigned after surface cleaning with a high-efficiency filtered vacuum on low suction. The flag was then placed face down onto a board and covered with silicone release film. Rather than stretch silk crepeline onto a cardboard stretcher, this time it was placed directly over the silicone release film and taped in place using green polyethylene terephthalate tape, which sticks to silicone release film (fig. 8). A 50% v/v solution of Plextol B-500 with filtered water was applied to the crepeline to correspond with the fragile painted and split areas of the flag (fig. 9) [note 3]. To avoid needing to hem the silk crepeline, a line of adhesive was painted around the perimeter of the underlay to allow for a clean-cut edge. When the adhesive was dry, the crepeline was carefully peeled off the silicone release film, realigned over the back of the flag, and adhered with a tacking iron (fig. 10). The perimeter of the crepeline was trimmed carefully before it too was tacked to the back of the flag. The flag was flipped face up and the loose fragments were individually glued into place. After mounting to an aluminum honeycomb panel, the



Fig. 9. Self-stenciling the silk crepeline underlay for the Third Connecticut Regiment flag.

flag was given a powder-coated welded aluminum frame. The Third Company, Third Connecticut Regiment flag was returned to the New-York Historical Society and displayed in the 2016 exhibit *The Battle of Brooklyn* (fig. 11).



Fig. 10. Applying the silk crepeline underlay to the back of the Third Connecticut Regiment flag using a tacking iron.

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Fig. 11. The Third Connecticut Regiment flag after conservation.

### 3.2 EVOLUTION OF THE TECHNIQUE

This second application of self-stenciling to the lining of a Revolutionary War-era flag was as successful as the first, with variations in technique that made it even more time-efficient. The crepeline underlay was taped to the same board that the flag was on, eliminating unwanted movement during adhesive application. The flag could be mounted with less stitching than was used for the Bucks of America Flag because the lining was adhered not just behind painted areas but also around the perimeter and behind splits and tears (fig. 12). Measuring just 74.9 cm × 87.6 cm (29.5 in. × 34.5 in.), the Third Connecticut flag is less than half the size of the first flag treated, allowing conservators to rely more on the pressure of the acrylic and reduce the amount of necessary stitching. For both flags, repositioning the adhesive lining even after it was tacked in place was made possible by the low-tack nature of the adhesive bond.

### 4. OTHER APPLICATIONS FOR SELF-STENCILING

Curiosity about whether self-stenciling could save time and manipulation in other textile lining projects led conservators to test the method twice more. In one case it was successful and in the other case it was not.

#### 4.1 THE ABIGAIL ADAMS APRON

Self-stenciling was used successfully to conserve a silk apron belonging to the New Hampshire Historical Society that is said to have been worn by Abigail Adams. The apron was damaged along the proper-right side



Fig. 12. Adhesive diagram for the Third Connecticut Regiment flag.

from extensive light exposure leading to physical instability, loss of material, and color change (fig. 13). Because the silk disintegrated easily when stitched, an adhesive lining was the best option for stabilizing the apron enough to allow for display. A sheer underlay of brown polyester Stabiltex was found to provide the best support and color compensation in areas of loss.



Fig. 13. Front and back of the Abigail Adams apron, before conservation.

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The two ties were removed from the upper corners, followed by a piece of trim that was stitched over the gathered top edge. The apron was flattened out and pinned face down onto a plastic-coated board. After moistening and finger blocking the apron to correct distortion, silicone release film was placed over the back of the apron. The brown Stabiltex was then taped down over the textile. A 50% v/v solution of Plextol B-500 with filtered water was painted onto the Stabiltex wherever there was surviving silk on the apron, leaving no adhesive to show behind areas of loss (fig. 14). The silicone release film was carefully lifted off the apron and placed on another surface to dry. The adhesive lining was tacked to the back of the apron with a tacking iron and the perimeter was trimmed with scissors. When the lining process was complete, the apron was flipped over and a piece of brown nylon net was stitched to the front to completely sandwich it for support. The apron was once again gathered and the original trim was hand stitched into place. The ties were reattached at the top corners and support pillows were inserted below the gathers (fig. 15).

### 4.2 THE *LITTLE COLONEL* DRESS

A silk taffeta costume worn by Shirley Temple in the 1935 film *The Little Colonel* was brought to MTS in a state of near-complete failure. Chemical degradation, light exposure, and extensive handling had caused the



Fig. 14. Polyester Stabiltex underlay for the Abigail Adams apron after adhesive was applied. The apron is still damp from blocking.



Fig. 15. The Abigail Adams apron after conservation.

silk to powder and split in all directions. Approximately 20% of the original silk was missing or not suitable to reuse in the conservation treatment. A solution was needed, therefore, to consolidate the remaining pieces of the dress onto a new silk lining so that the dress could be reassembled and displayed.

A 16-mm silk habotai was chosen as the lining fabric and dyed a suitable shade of ecru using Jacquard acid dyes. A test was set up to try self-stenciling over an area of loss on one of the skirt panels. The original material was flipped face down and covered with silicone release film. The dyed silk lining fabric was taped over the area being tested. Because of the opacity of the silk habotai, it was not possible to see where areas of loss existed on the skirt panel and where the adhesive solution should be painted, and self-stenciling was not used.

## 5. CONCLUSIONS

Self-stenciling proved useful for creating extremely accurate adhesive linings for fragile textiles with complex patterns of damage. Rather than applying adhesive to the entire support fabric, the textile itself was used as a guide to paint adhesive only where needed so it does not show through areas of loss. Extremely accurate adhesive application is possible with both silk crepeline and polyester Stabiltex due to their transparency and dense weave structure. Precise alignment of the adhesive lining to the textile was made easier by the use of a low-tack solution of Plextol B-500, which is repositionable without needing to be reheated or remoistened.

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Adhesive treatments are sometimes seen as a last resort for textiles that cannot be conserved by other methods, in part because reversibility can be questionable. With this technique, a fully reversible, minimally visible adhesive lining can be safely used to extend the life of worn and venerated textiles.

### ACKNOWLEDGMENTS

The authors wish to thank the Museum Textile Services staff who contributed to the above projects: technician Megan Mary Creamer, contract conservator Courtney Jason, conservator Cara Jordan, and administrator Kathleen McKenna.

### NOTES

- [1] The “JGWH” initials on the flag are now widely believed to be those of John Hancock’s son, John George Washington Hancock. Born in 1778 in Fairfield, Connecticut, “Johnny” was something of a mascot to the unit, and therefore it is fitting that Hancock had his young son’s initials painted on the flag. The initials prove relevant because they allow the flag to be dated tentatively to between 1780, when Hancock started his first term as governor, and 1787, when Johnny died after an ice skating accident.
- [2] This technique of painting individual fragments with a 50% solution of Plextol B-500 before adhering them in place onto the lining fabric works only with painted fragments. This adhesive solution will saturate unpainted silk fragments, changing their color and appearance.
- [3] During adhesive application, an undetected hole in the silicone release film allowed adhesive to leak onto the flag, wicking to the front of an area of unpainted silk. The adhesive was removed by applying a 50% v/v solution of 91% isopropanol and filtered water, blotting excess moisture, and then drying with a cool air dryer.

### REFERENCES

Bentley, A. 2015. Personal communication. Massachusetts Historical Society, Boston, Massachusetts.

Bucks of America flag. 2017. Massachusetts Historical Society. Accessed April 1, 2017. <http://www.masshist.org/database/788>.

Nell, W. C. 1855. *The Colored patriots of the American Revolution: with sketches of several distinguished colored persons; to which is added a brief survey of the condition and prospects of colored Americans*. Boston: R. F. Wallcut.

Robertson, J. K. 2016. Decoding Connecticut militia 1739–1783. Accessed April 1, 2017. <https://allthingsliberty.com/2016/07/connecticut-militia-1739-1783/>.

### FURTHER READING

TSG Chapter VI. Treatment of Textiles - Section H. Consolidation/Stabilization - Non-adhesive Methods. 2002. Textile Specialty Group conservation wiki. Accessed April 1, 2017. [http://www.conservation-wiki.com/wiki/TSG\\_Chapter\\_VI.\\_Treatment\\_of\\_Textiles\\_-\\_Section\\_H.\\_Consolidation/Stabilization\\_-\\_Non-adhesive\\_Methods](http://www.conservation-wiki.com/wiki/TSG_Chapter_VI._Treatment_of_Textiles_-_Section_H._Consolidation/Stabilization_-_Non-adhesive_Methods).

Thompson, K., M. Smith, and F. Lennard. 2017. A literature review of analytical techniques for materials characterisation of painted textiles—Part 1: categorising painted textiles, sampling and the use of optical tools. *Journal of the Institute of Conservation* 40 (1): 64–82.

Tímár-Balázs, Á., and D. Eastop. 1999. Adhesives and consolidants. In *Chemical principles of textile conservation*. Oxford: Butterworth-Heinemann. 304–331.

## SOURCES OF MATERIALS

Preservation Pencil, silicone release polyethylene film, blotter paper, and ¼-in. polyester felt

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