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Hair Today and (Not) Gone Tomorrow: The Conservation of a 19th-Century Hair Album

INTRODUCTION

In 2019, the Davenport House Museum brought a nineteenth-century album to the Northeast Document Conservation Center (NEDCC) for assessment, conservation, and digitization. The Sarah Davenport album contained an unusual surprise: locks of human hair that Sarah had collected from her family and tied into the book using silk ribbons (fig. 1). Due to the presence of this hair, which was slightly brittle and often detached from the support leaves, as well as the need to preserve the artifactual value of the volume, this project required drawing upon elements of textile, objects, and book conservation to find a solution that would neither harm the hair nor render the book meaningless from a curatorial and historical perspective.

Victorian Hairwork

Victorians used human hair from friends and family to create wreaths and jewelry, items commonly referred to as hairwork. In a time before photography, a piece of hair was the only tangible way to remember a person who had died, and hair wreaths and jewelry were often created as an act of mourning (Sheumaker 2007, ix–x). The jewelry served as a way to keep the memory of loved ones near the wearers as they went on with their daily lives. These items were considered a socially acceptable fashion accessory during the official mourning period when regular jewelry might be viewed as disrespectful or distasteful.

Hair wreaths also served a memorial function, at least initially, and were often fashioned into a horseshoe shape with the open end facing upward to signify an ascent into heaven (Everhart Museum 2020). Over time, Victorians began to create hair wreaths as sentimental items to gift to friends. Similarly, hair albums were often assembled using locks of hair from living friends and family and functioned as a type of album amicorum or friendship album (Sheumaker 2007, 26).

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Locks of hair in these albums were styled according to the abilities of the album creator, ranging from simple bunches to elaborate braided and looped creations.

The Davenport House Museum

The Davenport House, located in Savannah, Georgia, was built by local master builder Isaiah Davenport in the 1820s as a home for himself, his wife Sarah, and their children, and it is one of the oldest brick structures in the city. Sarah Rosamond Clark Davenport married Isaiah Davenport in 1809 at the age of 21. The couple bore 10 children over the course of 17 years, 7 of whom lived to adulthood. Unfortunately, the Davenports' first 3 children, Susannah, Sarah Rush, and Thurston, passed away in their infant and toddler years of bilious fever, teething/bowel complaints, and dysentery, respectively. After only 18 years of marriage, Isaiah passed away from yellow fever in 1827 at the age of 43. Faced with financial difficulties, Sarah sold off several properties and turned the family home into a boarding house in an attempt to keep the property and provide for herself, her mother, and her children (Davenport House Museum 2010).

As family circumstances changed, the house was eventually sold, and over the course of the next century, it fell into disrepair. In 1955, just hours before the historic house was scheduled to be demolished to pave the way for a funeral home parking lot, it was purchased by the newly formed Historic Savannah Foundation. Over the next seven years, the house was restored and was opened to the public as the historic Davenport House Museum in the early 1960s (Davenport House Museum 2015).

Sarah Davenport's Album

Sarah Davenport's album is an important part of the museum's collection, as it contains tangible physical representations of the entire Davenport family. Sarah was gifted the album in 1829 by an anonymous friend, ostensibly as a friendship album. It contains handwritten poems and anecdotes on memory, mortality, faith, youth, beauty, and love, and locks of hair from her parents, husband, children, their

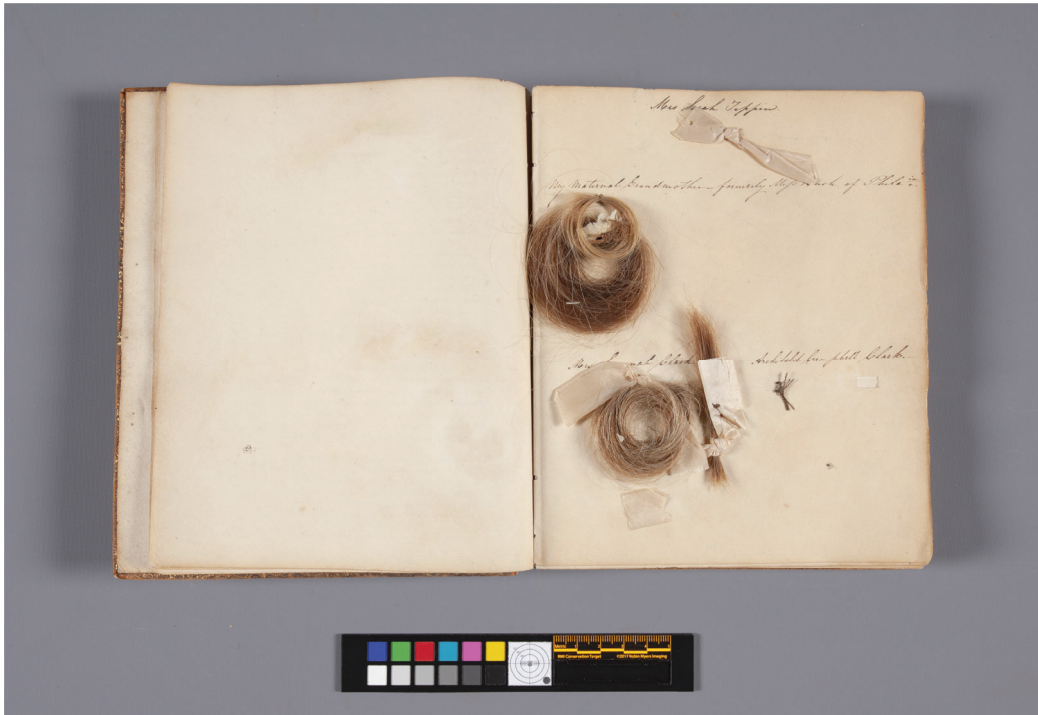


Fig. 1. The Sarah Davenport album prior to treatment.

spouses, and her grandchildren. Sarah arranged the locks of hair by birth order and family unit into a family tree of sorts, a common grouping method in Victorian hair albums (Sheumaker 2007, 121).

Sarah's book has more focus on mourning than is usual for hair albums, possibly because the album was given to her in the same year that her mother died. By 1829, Sarah had already experienced significant loss, including the death of her husband; three of her children; and her maternal grandmother, mother, and father. The album contains locks of hair from these family members who predecease the creation of the album, in some cases by decades, so it is clear that Sarah had been collecting hair long before she ever thought to assemble it in one place.

CONSERVATION ISSUES

The album consists of a full leather binding with blind and gold tooling on the boards and spine. There were several structural issues with the binding, including a detached front board and broken sewing in the first two sections. The remainder of the text block's sewing was intact, and the back board was still attached. The damage at the front was caused by the addition of thick locks of hair throughout the first three sections, which distorted the text block and strained the sewing and front board attachment (fig. 2). The album

did not have any compensation stubs to account for the extra bulk of the hair, so the binding broke in the areas experiencing the most mechanical strain. This type of damage is very common in scrapbooks created from books never meant to accommodate the addition of extra materials by the reader.

The text block consisted of sections of machine-made paper sewn through the fold onto two recessed cords. There were manuscript entries throughout the text block, and locks of hair were attached with silk ribbons laced through slits in the support leaves. The silk ribbons were brittle and fractured; as a result, many of the locks of hair were detached from the text block. Historic hair tends to get more brittle as it ages, and these 200-year-old locks were no exception. Some were broken at their attachment point where the thread or ribbon tied around the hair had created a single compression point that bore the brunt of the mechanical strain. Several support leaves were torn or had losses at the attachment slits, again a result of the hair straining at a single point. Some hair locks had even separated over time into two pieces.

DEVISING A TREATMENT PLAN

The Sarah Davenport album is an unusual object featuring a variety of materials including human hair, silk ribbons, paper, and leather. The question of how to treat this album, both in terms of its individual components and as a whole object, was by no means



Fig. 2. Text block distortion caused by the hair locks' extra bulk.

simple. When multiple pieces of hair are introduced into a bound structure with moving parts, the result is a particularly complex object with many competing conservation priorities. Formulating a treatment plan that maintained the functionality and historic appearance of the album while also addressing the conservation needs of the hair required drawing from multiple conservation disciplines to overcome this unique challenge.

Treatment Goals and Ethical Considerations

The goals of treatment were to stabilize the hair to prevent further loss; mend the broken silk ribbons; identify the correct location and positioning of the loose hair locks; reattach them to the support leaves; and restore functionality to the binding by mending the torn support leaves, strengthening the sewing, and reattaching the front board.

Deciding how to treat the hair was complicated and by far the most difficult part of the conservation process. When considering potential treatment options, the conservator needed to determine whether it was safe to remount the hair and also whether doing so was appropriate for both the album and the client's needs.

As it ages, hair becomes more brittle and fragile, making it vulnerable to mechanical wear. The least interventive and safest option for the hair was to rehouse the loose hair locks in acid-free tissue in archival storage boxes. However, the album had a significant amount of artifactual value stemming from Sarah's careful arrangements of the hair, and it would lose most of its meaning if the hair locks were removed and stored separately. Both the conservator and the curator strongly felt that the album and hair needed to remain together in a format as close as possible to Sarah's original creation.

Leaving the hair loose was not possible since many of the hair locks had already gone missing over time: if the locks were to remain with the album, they needed to be secured in some way since reattachment would help prevent further loss. Although the hair was slightly brittle, it was fairly flexible and could be handled safely. This meant that the hair could be remounted provided that it was done gently and in a way that minimized pressure points or other mechanical stress.

However, the hair was not strong enough to simply reattach by tying ribbons through the slits in the support leaves, and many of the support leaves had torn because of the original attachment method anyway. This method would place too much strain on both the hair and the paper at a single point of attachment. Furthermore, the original silk ribbons were so fragile that they would disintegrate if tied in a knot. A thorough literature search was conducted, but there seemed to be no direct precedent to guide the conservation process.

Considering that hair is a material rarely handled by book conservators, outside expertise was needed. Camille Myers Breeze and Morgan Blei Carbone of Museum Textile Services were consulted to ask how textile conservators stabilize fragile textiles. Their technique involves stitching the original materials between a backing layer of Stabiltex/Tetex polyester woven textile and an upper layer of nylon thermoset net using an ultrafine polyester thread so that the fragile materials are supported on both sides. Since wigs are made by stitching hair onto a mesh textile, it was felt that there was a strong historic precedent for securing loose hair in this manner, and the conservator decided to develop a method based on textile conservation techniques.

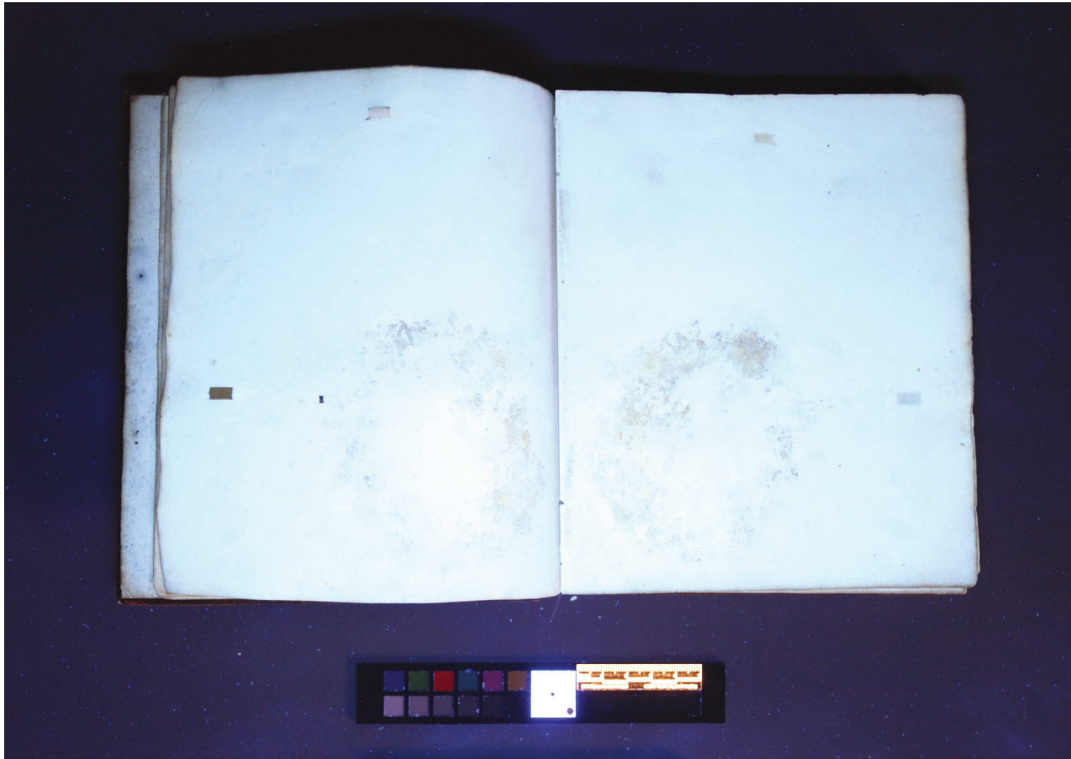


Fig. 3. Discoloration of the text block caused by the unidentified white powder as seen under long-wavelength UV light.

CONSERVATION TREATMENT

Documentation

Prior to beginning treatment, the album condition was documented with a written report and representative photographs. The leaves were collated and paginated in graphite pencil. Leaves containing locks of hair were photocollated to record the precise initial locations of the hair. These leaves were also imaged under long-wavelength UV light. This was initially done to check for the potential presence of insecticides since mercury (II) chloride when applied to paper can fluoresce peach or cream under UV light (Purewal 2012, 115). A handheld UV light unexpectedly revealed hidden staining on the support leaves in the exact shape of the hair and these images were useful for remounting the hair locks in their precise original locations once they had been stabilized.

Surface Cleaning

During examination, it was discovered that some support leaves in the album were covered in an unidentified white powder that was potentially toxic. The use of insecticides such as mercury, arsenic, and lead on natural history specimens was widespread in museum collections during the 19th and 20th centuries (Hawks 2001). Because this album contained hair and showed very little insect activity, the powder

was almost certainly a hazardous insecticide (Purewal 2001, 77). The powder was located only on blank support leaves between the leaves containing hair, was causing damage to the paper (fig. 3), and served no artifactual purpose, so for safety reasons it was decided to remove as much of it as possible.

The powder was removed by using a HEPA-filtered vacuum in a fume hood. Where necessary, a microspatula was used to loosen the powder. The support leaves were then surface cleaned with vulcanized rubber sponges. Although vacuuming and surface cleaning reduced the risk of exposure to potentially hazardous materials, it did not eliminate it, and so the conservator and photographer wore N95 masks, nitrile gloves, and laboratory coats while handling the album throughout the decontamination, conservation, and imaging processes. Additionally, the book was stored separately from other projects to avoid any potential cross contamination. Samples of the white powder were collected and retained, and it is hoped that these will be analyzed in the future to identify the unknown substance.

Spine Cleaning and Partial Disbinding

Next, the leather on the boards and spine were lifted to improve access to the spine for cleaning and prepare for the eventual reback (fig. 4). The back board and spine piece were still attached to the binding, so these areas were masked off



Fig. 4. Lifting leather on the boards in preparation for board reattachment.

with Melinex to prevent moisture migration and then the spine was cleaned with a 4% methyl cellulose poultice.

Paper Mending

The sewing was broken toward the front of the text block leaving the first two sections loose and almost entirely detached, and so these sections were removed to facilitate mending. Most of the spine folds of the bifolia in these two sections were split or partially split, and the leaves had many small tears and losses. The majority of this damage was concentrated along the fore edges of the sections, which protruded beyond the edges of the front board and were therefore unprotected. The slits in the support leaves through which the hair locks had been tied were also torn and sometimes lost. Tears were mended, losses were filled, and spine folds were guarded with a lightweight Japanese kozo tissue and Aytex-P wheat starch paste. The Japanese tissue was lightly toned with Liquitex acrylic pigment where needed to help the repair blend into the text block.

Stabilizing the Hair

Materials Selection

As mentioned previously, textile conservators often stabilize fragile textiles by stitching them between a backing textile and

a sheer overlay. Common backing textiles include polyester Tetex/Stabiltex or silk crepeline. Nylon net is most often used as the sheer overlay since it has a very open structure, is almost invisible, and does not fray when cut (AIC Wiki 2020). Gutermann Skala 360 polyester thread was selected for sewing because of its long-term stability and because the thread was so fine that it closely resembled human hair and would blend into the background well.

There are two types of nylon net: bobbinet-constructed nylon net, which is softer and has a better drape, and thermoset (also known as heat-set) nylon net, which is slightly stiffer and may also be more abrasive depending on the supplier. Bobbinet net is very expensive; difficult to source; and often only available in white, off-white, or black, although it can be dyed to better match the object's coloring. Nylon thermoset net, on the other hand, is widely available, very inexpensive, and comes in an almost unlimited color palette. However, the thermoset net must be chosen carefully, since the softness of nylon thermoset nets varies widely between manufacturers and more abrasive sheer overlay textiles pose a threat to fragile historical materials (Fulkerson LaVallee 2005).

Although the excellent drape of bobbinet-constructed net is normally an asset for textile stabilization, it was felt that nylon thermoset net would be a better choice for stabilizing

the hair because it is slightly more rigid and therefore the hair would be less likely to experience mechanical wear due to flexing. A 100% nylon apparel-grade CPSIA-compliant thermoset tulle from Fabric.com was selected for this project due to its softness and sheeriness.

Nylon can be a controversial choice of textile—there is evidence that it degrades when exposed to light (AIC Wiki 2020). In this case, the netting would be covered by hair in the closed pages of a book, which would then be stored in a custom drop-spine cloth-covered box. Light exposure to the volume in the long term would be minimal, so it was decided to proceed with the nylon textile since it offered the most support while minimizing visual impact.

Refining the Technique

Before working with the historic locks of hair, the textile stabilization technique needed to be developed with practice models. It was impractical to source modern human hair, so hair silk was used to experiment with the technique instead because it looks and feels similar to human hair. During testing, it was discovered that the nylon thermoset net was very visually distracting when laid on top of the hair silk. It was also discovered that the Stabiltex/Tetex polyester backing layer was very prone to fraying. Although the edges could be heat sealed after trimming, this would involve getting a heated tool very close to the hair. The nylon thermoset net, however, did not fray when trimmed. The decision was made

to use the nylon thermoset net as a backing layer and to omit the sheer overlay. Instead, the hair would be held to the backing textile using a network of broad stitches woven through multiple layers of the hair to form an invisible yet secure three-dimensional “net” structure capable of gently supporting the hair.

Preparing a Sewing Frame

The netting needed to be held at an even tension so that the hair would not pucker after stitching. An embroidery hoop would have stretched the net too much, causing uneven tension when the net was released. Instead, a window mat with a 3 × 3 in. aperture was cut out of four-ply acid-free and lignin-free black mat board. The shade of both the nylon thermoset net and Gutermann Skala polyester thread were selected carefully to provide the best possible color match with the individual locks of hair. A 5 × 5 in. square of the net was attached to the flat, nonbeveled side of the mat board using painter’s tape (fig. 5). The tape held the textile flat with minimal tension so that it would not contract unevenly when released. The painter’s tape could be removed easily so that both mat and tape could be reused multiple times, minimizing waste materials.

Once the netting was attached, the mat board was turned over so that the hair could nestle inside the beveled recess of the window mat. The mat board rested on top of several brass rectangular weights—one at each corner of the board—so that

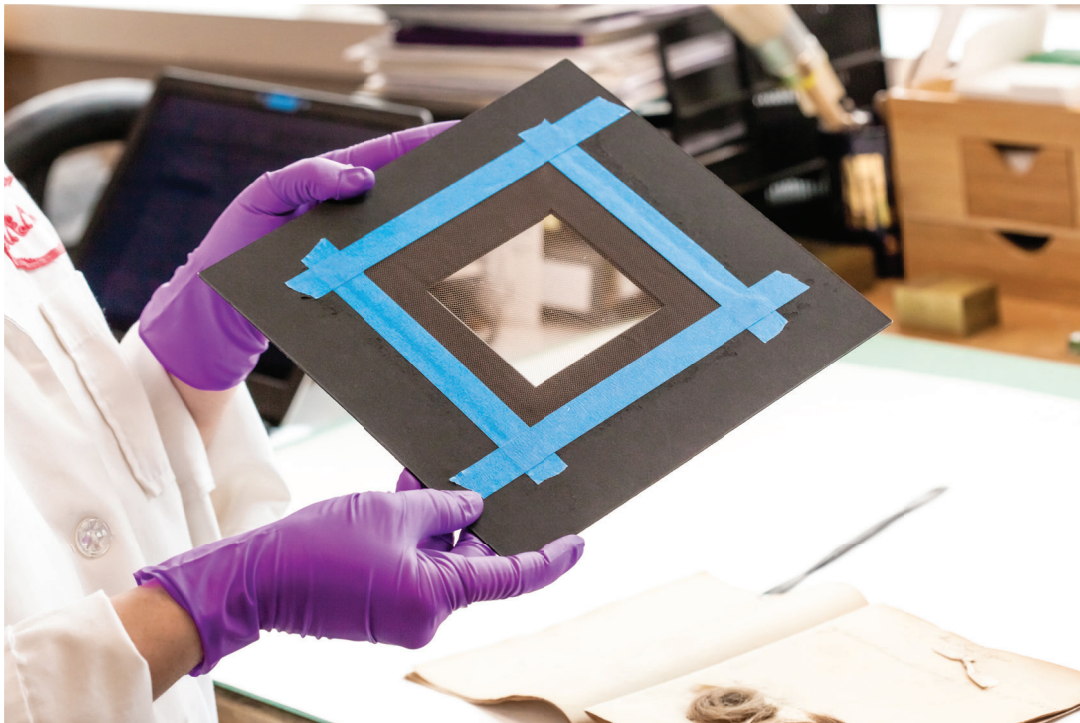


Fig. 5. Nylon thermoset net fixed to the mat board sewing frame with painter’s tape.



Fig. 6. Tweezers were used to tuck in stray hairs and arrange the lock into the most natural shape.

both sides of the net could be accessed during sewing. A needle was threaded with Gutermann Skala 360 polyester thread.¹ Because the thread was so fine, it tended to slide out of the eye of the needle, so the thread was tied around the eye using a square knot to secure it. After sewing, this knot was loosened by unpicking it gently with an awl. The tail end of the thread was secured by tying it with a square knot to the nylon net.

Styling the Hair

Once the net and thread were in place, a lock of hair was transferred to the net using a large microspatula. The hair was placed over the thread where it was knotted to the net so that the knot was covered. The hair was then gently arranged so that the curl of the lock fell in the most natural position. Any stray strands of hair that were sticking out from the lock were tucked back into place with fine, round flat-tip stainless steel tweezers so that they would be included in the stitching process (fig. 6).

Sewing Technique

Next, the hair was sewn to the nylon net using long stitches woven through several layers of hair at varying depths (fig. 7). To avoid compression points where the hair could possibly break over time, the sewing tension of the thread was kept loose and the stitches were long to spread any strain over a larger surface area. This method secured the hair to the net while leaving very little of the stitch visible on the surface

of the lock. Because the thread had a very similar texture, appearance, and sheen as the hair, the small lengths of thread that showed through the hair were almost invisible.

Once sewing was complete, the mat board was flipped over and the remaining thread was tied in a square knot to the tail of thread from the initial knot on the back of the net. Small glass blocks were used to support the hair while the mat was inverted (fig. 8). This was particularly helpful when a fragile silk ribbon was attached to the lock. Both loose ends of thread were then woven through the nylon net before trimming the ends.

After sewing, the net was trimmed as closely as possible to the hair. During trimming, the hair was held gently with fine, round, flat-tip stainless steel tweezers to keep it away from the scalpel blade (fig. 9). Holding the hair back from the blade also allowed the conservator to see where the sewing threads were so that the threads were not accidentally severed during the net trimming process. The inner circle of the net was trimmed first, followed by the net around the outer edge of the lock. The net was trimmed in this order to help maintain net tension for as long as possible (fig. 10).

Determining the Original Hair Locations

Once the hair locks had been stabilized, their original locations needed to be determined before they were remounted into the volume. Since some locks had moved locations over time, usually to the conjugate leaf of their bifolium, precise



Fig. 7. Weaving the sewing needle through layers of hair.

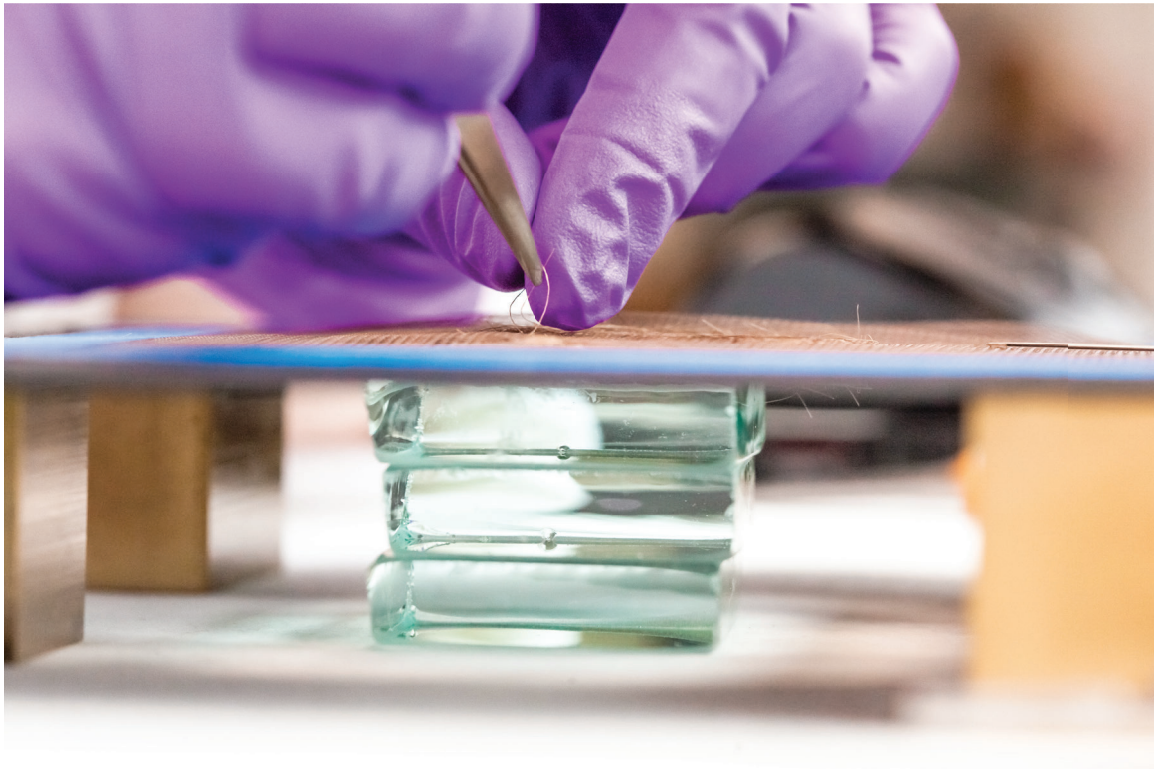


Fig. 8. Glass blocks supported the hair lock and silk ribbon while the sewing frame was inverted so that the sewing thread could be tied off.



Fig. 9. Tweezers were used to hold the hair back from the scalpel blade when trimming the nylon thermoset net.



Fig. 10. Removing the trimmed nylon thermoset net from the center of the hair lock.

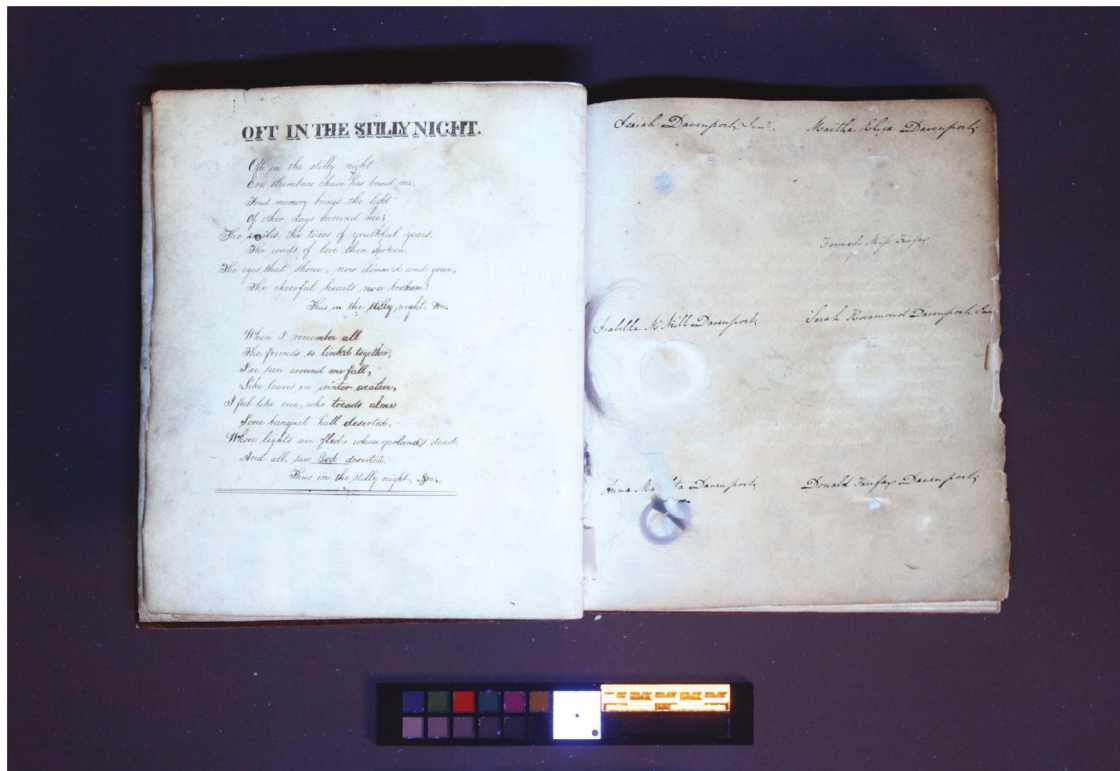


Fig. 11. Discoloration of the text block caused by hair lock staining was more visible when viewed under long-wavelength UV light.

identification was important. Identifications were made using visual cues from the hair, ribbons, or support leaf stains. In some cases, the shape of a ribbon fragment caught in the slit on the support leaf matched the shape of a loss in the silk ribbon tied to a hair lock. In other instances, the shape of staining on the support leaves exactly matched the precise outlines of the locks.

UV imaging was useful for determining hair lock locations when support leaf staining was not obvious under natural light. UV imaging also conclusively proved that locks of hair had gone missing from the album at some point in the past 200 years. The album contained a number of names with no associated hair or obvious support leaf staining. There were slits in the paper underneath the names, clearly made in preparation for mounting the hair, but no visible evidence that the hair had ever actually been there. Under UV light, many of these apparently blank support leaves suddenly showed pronounced areas of discoloration where hair locks had previously been attached (fig. 11). Although the hair locks are now missing, this tells us that the hair locks were lost after they had been attached long enough to stain the support leaf.

Two identical locks of hair on one support leaf proved to be a particularly puzzling challenge. Both were the exact same shade of brown, and one was tied with a pinkish beige

silk ribbon, whereas the other was a larger untied curl of hair (fig. 12). When examining the support leaf where these two locks of hair were located, it was discovered that one named entry had hair attached in two places underneath the name, which was unusual for the volume. The left-hand attachment slit had an unbroken knot of brown thread laced through it, whereas the right-hand slit had a loss in the paper. It was thought that the two identical hair tufts were originally part of one whole lock. The lock broke at the left-hand attachment point, leaving the curl of hair detached and also unbound by thread, which remained in the paper slit. The right-hand attachment slit was broken, which explains why the silk ribbon was still attached and fully intact on the other tuft of hair. It was decided to stitch these two locks of hair onto one piece of textile, as there was strong evidence that they belonged together.

Remounting the Hair

The hair was reattached to the support leaves using slips of Japanese kozo paper lightly toned with Liquitex acrylic pigments. The paper slip was attached to the nylon thermoset net by sewing a little strip of net over the paper to the hair's support netting using Gutermann Skala 360 polyester thread (fig. 13). A couple of stitches passed through the paper slip to help secure it further (fig. 14).



Fig. 12. Two locks of hair, one bound with a silk ribbon and one unbound, were identical in hue and texture, and it was determined that they were originally part of the same lock.



Fig. 13. A slip of Japanese paper was sewn to the backing textile using a small piece of nylon thermoset net.



Fig. 14. Gutermann Skala 360 polyester thread was sewn through the paper slip to better attach it to the textile.

The perimeters of the slits in the support leaves were reinforced with a lightweight Japanese kozo tissue and wheat starch paste prior to the hair being remounted. Once the paper was stitched to the net, the ends of the paper slip were woven into the already-existing slits in the support leaves (fig. 15). The paper slips were adhered with wheat starch paste above and below the slits on the support leaf to avoid straining the fragile slit (fig. 16). Although all of the large locks of hair were able to be reattached to the support leaves, a number of loose hair knots, strands, and stubs were not because it was unclear which fragments had come from which lock. To keep loose hair stubs and knots safe, they were stabilized by stitching onto the nylon thermoset net and then the excess net was trimmed away. These hair and ribbon fragments were stored in labeled glassine bags and returned to the client.

Stabilizing the Silk Ribbons

The deteriorating silk ribbons were very fragile, so a decision was made to stabilize them where possible using a solvent-set silk crepeline lining made with a 3:1 Plextol B500:filtered water mixture (figs. 17, 18). The solvent-set

lining was made by brushing the adhesive solution onto a piece of Melinex through a silk screen and then laying a piece of silk crepeline gently over the top of the adhesive film while the film was still wet. Any air bubbles were lightly tamped down with a soft brush. After the adhesive was dry, small pieces of the solvent-set lining were cut to the exact shape of the silk ribbons. The lining was lightly tacked in place with low heat (<80°C) from a tacking iron and then reactivated with ethanol to improve adhesion (Plextol B500 1998) and reduce shine from the adhesive (Varga, Herrmann, and Ludwig 2015, 116). This method was used to line intact but fragile ribbons, as well as unite broken ribbon fragments into one piece. The ribbons were lined on one side only to prevent them from becoming too stiff and to preserve the original appearance of the ribbons.

Imaging

The volume was digitally imaged by the NEDCC Imaging Lab in compliance with FADGI specifications before the binding was reassembled to provide better photographic access to the leaves without straining the binding's



Fig. 15. Once attached, the Japanese paper slip was threaded through the pre-existing slits in the support leaves where the hair lock had originally been tied with silk ribbon.

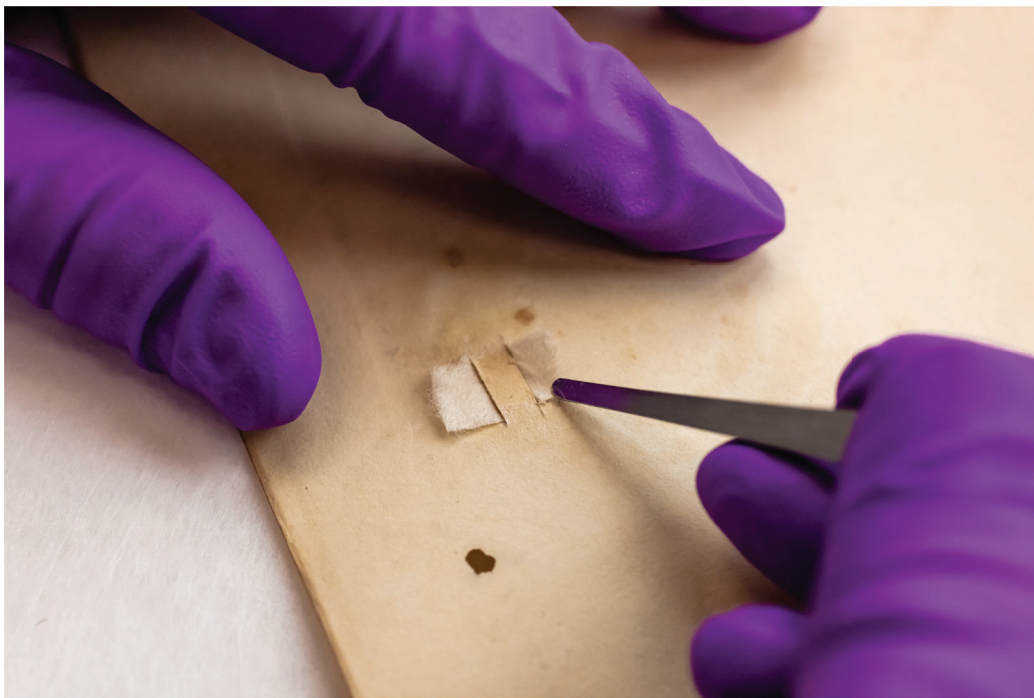


Fig. 16. The Japanese paper slip ends were pasted to the verso of the support leaf above and below the slits.



Fig. 17. The original silk ribbons were very fragile and needed stabilization.

structure. The images were placed on the Davenport House Museum website and are freely accessible to the public.²

Binding Repairs

After the hair was remounted, the sewing of the text block was reinforced using linen cords and linen thread waxed with microcrystalline wax. During sewing, space was added between the first three sections to accommodate the bulk of the hair so that the text block was no longer distorted. The linen cord sewing supports were frayed out and pasted onto the boards underneath the lifted leather to form a new board attachment. Because the majority of the original binding's leather covering was still intact and very little of the repair material would show when the repairs were finished, the binding was

rebacked with Japanese kozo paper toned with Liquitex acrylic pigments with a layer of airplane cotton underneath for added stability. The original binding leather was re-adhered over the rebacked spine and boards using Jade 403 polyvinyl acetate adhesive.

Housing and Documentation

After conservation, the volume was housed in a custom-fitted cloth-covered drop spine box. The volume's post-treatment condition was documented photographically and also with a written report. A reduced treatment report containing the volume's initial condition, treatments carried out, and a materials list was adhered to the interior of the upper box lid. Additional written and photographic treatment documentation was kept by NEDCC and provided to the client.

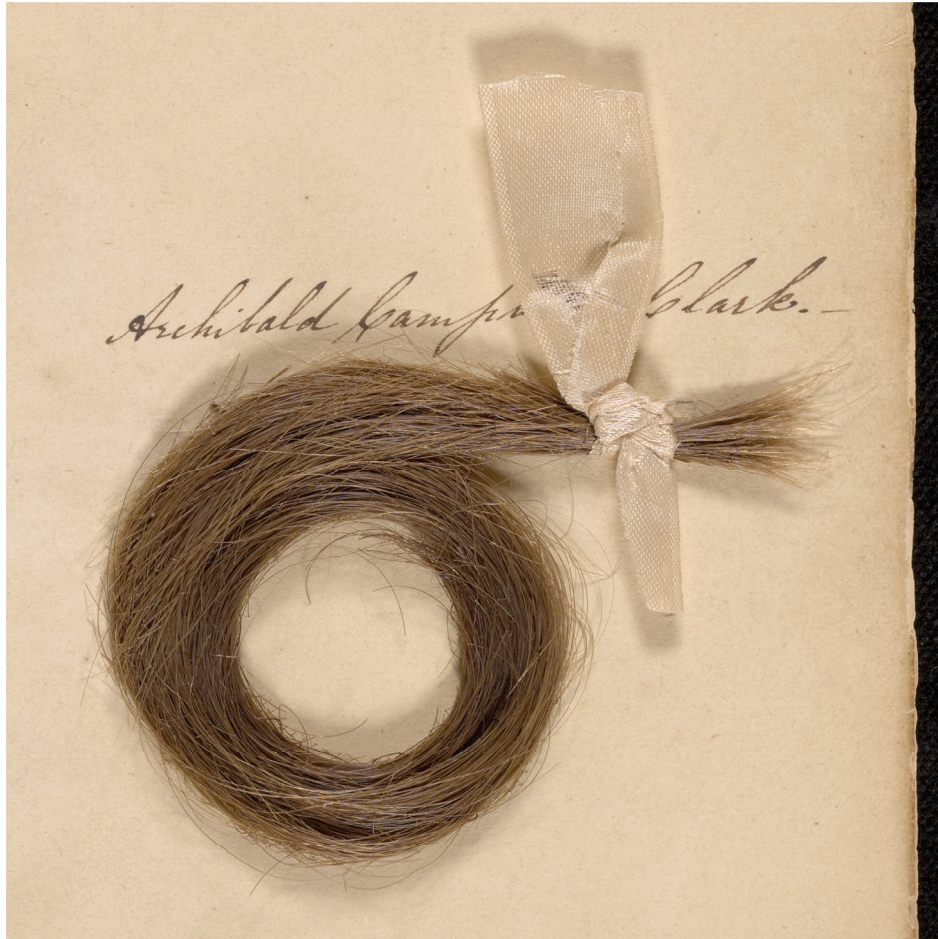


Fig. 18. A silk ribbon after being stabilized with a solvent-set lining consisting of silk crepeline and a 3:1 Plextol B500:filtered water adhesive film.

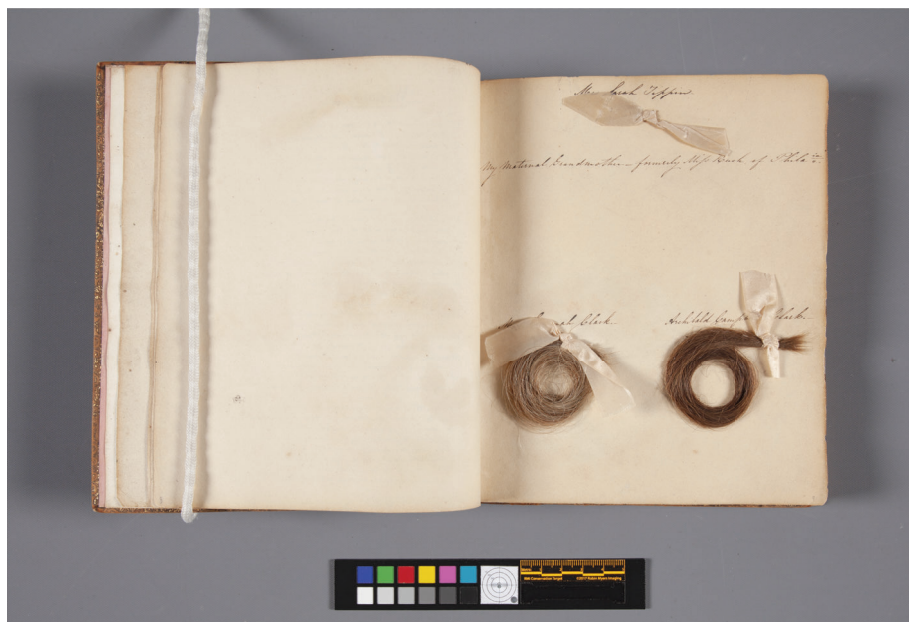


Fig. 19. The Sarah Davenport album after treatment.

CONCLUSION

This new treatment approach successfully balanced competing curatorial and conservation priorities by stabilizing and remounting the hair locks into the album without causing harm to the hair or the support leaves. The most minimally interventive approach of rehousing the loose hair and storing it separately would have stripped the album of its artistic and historical significance, and perhaps could have caused even more damage to the hair in the long run due to an increased need to handle the unbound locks.

Stitching the hair onto the net textile meant that individual hairs were less prone to breakage from mechanical wear since the nylon thermoset net and thread helped protect the hair from excess movement. Any stress sustained by pressure from the sewing thread on the hair was minimized by sewing loosely with relatively broad stitches, and by the large number of stitches, both of which diffused stress over the surface area of the lock. The sewing threads form an internal network of support, keeping the hair stable and secure without undue restriction.

Remounting the hair locks into the album will help prevent the hair from being lost in the future—an important priority since so many locks had already gone missing over the course of the past 191 years. The remounting method ensures that the nylon thermoset net and not the hair will take the strain of attachment. Additionally, by securing the Japanese paper slips to the support leaf above and below the slits in the support leaves, rather than around the slits themselves, the support leaves are less likely to tear from mechanical wear during use. Resewing the text block to include extra space between the bulkiest sections helped reduce stress along the spine and front joint, leading to greater long-term stability in the binding.

Reconciling the treatment needs of the hair locks with the curatorial need to maintain the album's historical and artistic integrity was challenging but not impossible. The decision-making process required thinking outside the box, consulting with conservation experts outside of the book and paper field, extensive research into historic human hair, and a full consideration of the practical and ethical aspects of all potential treatment options. The treatments performed on the hair, text block, and binding restored functionality to the binding and ensured that a modern-day visitor to the Davenport House Museum will have a very similar visual reading experience to Sarah Davenport herself (fig. 19).

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NOTES

1. Although a straight needle was used for this project, the author recommends using a curved needle for sewing the hair to the nylon net since the curved shape makes it easier to weave through the layers and speeds up the sewing process.
2. A digitized version of the Sarah Davenport album can be viewed at the following link: <http://www.davenportmuseum.org/sarah-davenports-album/>. Please note that this is not a complete collection of images from the album photographed by NEDCC, as pictures of the blank leaves have been omitted from the website for simplicity's sake.

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SOURCES OF MATERIALS

Gutermann Skala 360 100% Polyester Thread
 Testfabrics Inc.
 415 Delaware Ave.
 West Pittston, PA 18643
 570-603-0432
 570-603-0433 (fax)
 info@testfabrics.com
<http://www.testfabrics.com/>

Nylon Bobbinet Tulle
 Dukeries Textiles and Fancy Goods
 Spenica House
 15A Melbourne Rd.
 West Bridgford, Nottingham
 NG2 5DJ
 UK
 +44 115 981 6330
 +44 115 981 6440 (fax)

100% Nylon Apparel-Grade CPSIA-Compliant Thermoset Tulle
 Fabric.com
 888-455-2940
<http://www.fabric.com/>

Silk Crepeline, Hair Silk, Curved Sewing Needles, and Plectol B500
 Talas
 330 Morgan Ave.
 Brooklyn, NY 11211
 212-219-0770
 212-219-0735 (fax)
<http://www.talasonline.com/>

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