SARAH REIDELL
MODERATOR

Book and Paper Group Tips Session 2013: Contemporary Treatment—Tips and Techniques

KAREN DABNEY

TIP: A "HOT AIR" TRICK FOR LOWERING PH IN AQUEOUS TREATMENT

PROBLEM

The author used this "hot air" trick in 1993 to remove salts from a water-damaged 1840s lithograph, *The Presidents of the United States,* published by E. B. and E. C. Kellogg (fig. 1). During testing, the lithograph's external salts were revealed to be soluble in water. The lithograph was washed with deionized water on a suction table to allow monitoring of the salt removal. The surface salts dissolved readily. Contrary to expectations, the hardened ridges of salt deposited within the paper remained insoluble.

ASSESSMENT

The salt deposits appeared to be associated with water damage and may have leached from a plaster wall into the framed print. The salts could have been components of lime plaster: hydrated lime (calcium hydroxide) and a common additive to lime plaster, gypsum (calcium sulfate dihydrate).

Calcium hydroxide has low solubility in water and is alkaline. Gypsum is more soluble in water and is not alkaline. If the print's surface salt was gypsum and the insoluble interior salt was calcium hydroxide, the latter could be dissolved by acidifying the water.

SOLUTION AND CONCLUSION

This strategy required a method of lowering the pH that would not leave a residue in the paper. Carbonic acid seemed

Fig. 1. A detail of the lithograph's verso before treatment, showing the small white salt deposits scattered over the surface and a hardened ridge caused by internal salt deposits. The dark accretions appeared to be residue from insect egg cases.

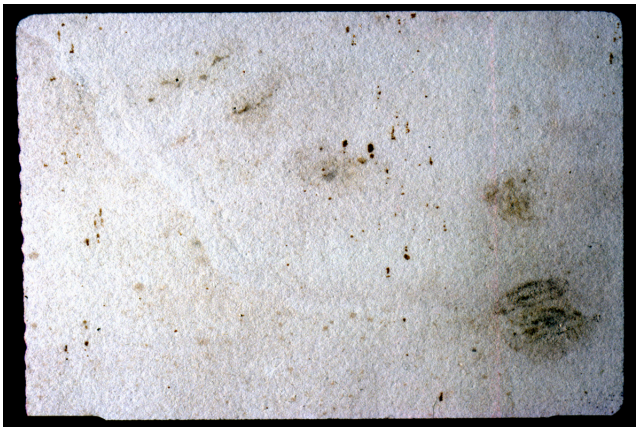

Fig. 2. The same detail of the lithograph's verso after treatment, with the salts and accretions removed

This informal tips session took place on June 1, 2013, during the 41st AIC Annual Meeting in Indianapolis, Indiana. The moderator, Book and Paper Group Program Chair Sarah Reidell, selected and organized the tip contributors after placing an open call for volunteers from among the BPG and AIC membership. Readers are reminded that the Book and Paper Group does not necessarily endorse the methods or materials shared by tip contributors. Further evaluation or research is advised before putting treatment observations into practice.

like a promising option. Although the conservation lab at the Pennsylvania Historical and Museum Commission did not have a carbon-dioxide tank readily available, the author realized she had everything she needed to test this option immediately. She exhaled repeatedly into a beaker of deionized water while stirring it vigorously, and was able to decrease the pH of the water from 5.5 to 4, as measured by ColorpHast pH strips. Local applications of the pH 4 water to the lithograph on the suction table quickly dissolved the internal salts, leaving bulging voids that were burnished flat with a bone folder through Hollytex, then dried under restraint. A "hot air" trick solved the problem (fig. 2).

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BETH DOYLE
TIP: A PAPYRUS REHOUSING PROJECT AT DUKE UNIVERSITY LIBRARIES

There are just over 1,500 papyri in the Duke University Libraries David M. Rubenstein Rare Book and Manuscript Library. They date from the 12th century B.C.E. to the 10th century C.E. Each fragment is housed between two pieces of glass sealed with adhesive tape. These glass packets used to be stacked three layers deep in boxes, with only a piece of blotter or folder stock between the layers.

A papyrus rehousing project was undertaken for several reasons. The existing housings did not provide adequate protection against physical damage and loss (fig. 3). The retrieval process was also difficult and potentially dangerous. To get to a papyrus fragment, staff had to search through the layers to find it, pull it from the box, then walk downstairs to the reading room. What ultimately made Conservation prioritize this project was discovering that the library renovation schedule had changed: in one year, the entire Rubenstein Library collection had to be moved to swing space.

Due to time and budget constraints, the new housing strategy had to be affordable and fast to assemble, and standard metal-edge boxes had to be used since there was no time to make custom boxes. The solution was a folder made from two pieces of four-ply mat board hinged together with Tyvek tape (fig. 4). Inside the folder is a piece of ¼-inch Volara foam with a custom-cut window that fits the glass packet. The foam is attached to the back board with double-sided adhesive tape. Seven of these folders fit into a 3-inch-deep metal-edge box (fig. 5).

On the front of each folder is a "picture label" that shows the contents and its accession number (fig. 6). This label is a quick way to confirm that the item inside is what it should be, and if it is missing it shows the staff what to look for. Each

Fig. 3. Retrieving papyrus from old housing

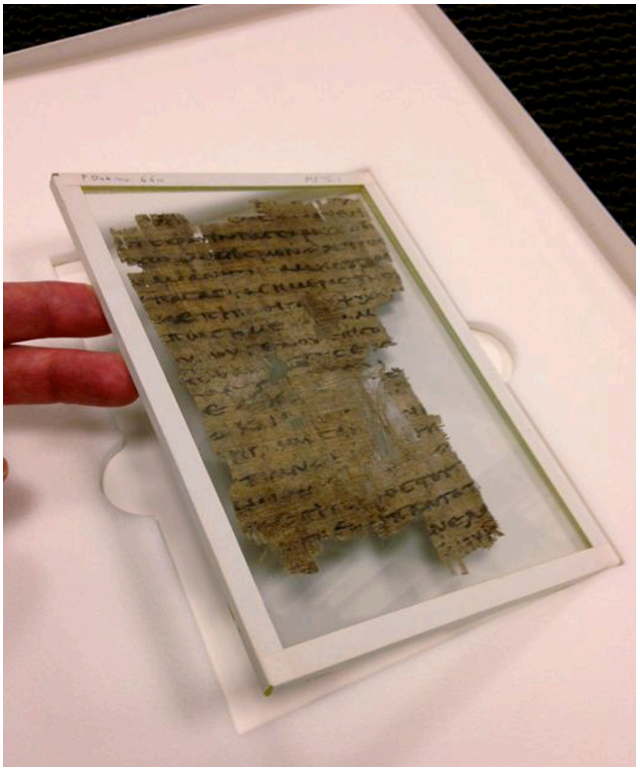

Fig. 4. Mat board and Volara folder

Fig. 5. Folders in new box

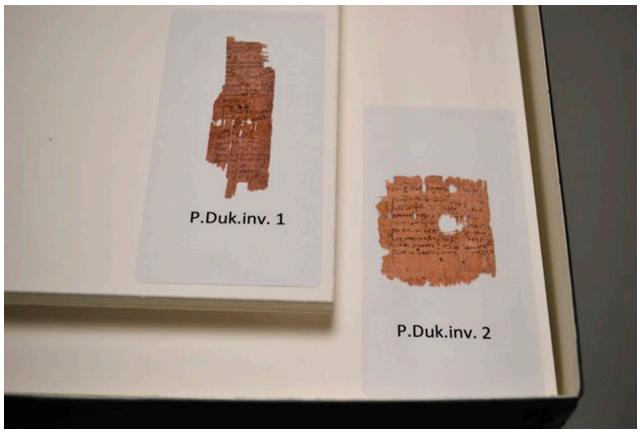

Fig. 6. Picture label on outside of folder

papyrus fragment is photographed with minimal image processing, so its shape can be seen. Microsoft Word and an Avery label template are used to print the labels, and the ink is fixed with a thin layer of Klucel G. These labels have been so successful that they are now used on enclosures for any non-book object.

Each month, the lab held two "Papyri Days" in which everyone worked to produce the folders in an assembly-line fashion. Before Papyri Day, the mat board and Volara were cut to size and stacked in a central location in the lab. On Papyri Day, one lab member took pictures; another made the labels as the images were saved to the server. The rest of the staff worked on hinging the mat board covers and cutting the Volara to fit the glass packets. At the end of the day, the folders were put in order and placed in new metal-edge boxes. Box labels were created once all the papyri were accounted for and in order.

The rehousing project was successfully finished on time and on budget, and the papyrus fragments take up less space than before. The feedback from the reading room staff has been very positive. "It's been wonderful to circulate these documents in such clean, safe, and elegant housings! Many thanks to Conservation for this work, which makes our work so much easier," said David Pavelich, Head of Research Services in the Rubenstein Library.

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JAMYE JAMISON

TIP: LASCAUX LININGS IN THE TREATMENT OF PARK PLANS FROM THE CLEVELAND PUBLIC LIBRARY

In addition to checking out the latest bestseller, patrons of Cleveland Public Library (CPL) can also view many wonderful pieces of Cleveland's rich history. ICA Art Conservation often partners with CPL to conserve some of the more unique works in the collection, including a selection of seven park plans from a large collection of 1890s maps used in the design and creation of some of Cleveland's most beloved parks. These large-scale topographic renderings were hand-drawn in ink, graphite, and watercolor on thick paper backed with fabric and rolled for transport to and from the field. Over many years of use and storage, the plans were in a severely deteriorated state. The paper was brittle, fractured, and beginning to detach from the fabric backing, with numerous losses already present and many more pieces tenuously attached (fig. 7). Because of the maps' size—they ranged from 8 to 13 feet long and about 4 to 5 feet high—the plans needed to be stored rolled.

Rather than trying to mend the split fabric and reattach the loose pieces to the unstable and deteriorating backing, a different approach was developed using Lascaux adhesives

Fig. 7. Before treatment: The map is unstable and unable to be photographed vertically. Courtesy of John T. Seyfried

to make heat-activated lining paper on a large scale. Taking a page from textile conservation, and with a lot of trial and error, a technique was devised to apply a 2:1 mixture of Lascaux 498HV and Lascaux 360HV to Japanese paper, creating a thicker layer of adhesive on one side only. First, the lining paper was placed on a piece of silicone-release polyester film. The Lascaux mixture was then thinned 1:2 with water, and two coats of the dilute adhesive were brushed onto the lining paper, allowing each coat to dry fully before applying the next. The lining paper was then peeled off the polyester film and flipped over, so a coat of full-strength adhesive could be applied to the now-sealed paper. If multiple lengths of paper needed to be joined along a horizontal seam to make a wider, longer sheet, the edges were overlapped about ¼ inch and tacked down lightly with heat.

Once each map had been humidified and flattened, it was placed face down on silicone-release polyester film.

Fig. 8. During treatment: The original fabric backing is present on the left, one vertical section is partially exposed in the center, and the map is partially lined with Lascaux lining paper on the right. The paper is suspended on a roll over the map. Courtesy of John T. Seyfried

Fig. 9. After treatment: Now with a handling edge of folded lining paper, the map is held vertically on a magnet board for photography. Courtesy of John T. Seyfried

The old fabric backing was peeled from the back of the paper, and the pieces were lightly tacked together with a thin film of the same Lascaux mixture to hold them in place. Vertical sections 6 to 8 inches wide were released from the fabric one at a time, and then the new lining paper was laid down and attached with heat using a Willard iron (approximately 45 seconds at 80°C). In this way, all the small fractured pieces were kept together and aligned properly while the backing removal for that section continued (fig. 8). If necessary, the verso could also be dry cleaned before the lining paper was laid down. Once the entire map was lined, the edges of the lining paper were folded in to create a sturdy border for handling (fig. 9). With the more flexible and stable Japanese paper backing, the objects can be rolled media-side out for long-term storage with minimal stress to the thick, brittle paper.

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LAURA MCCANN

TIPS: SUPERSTORMS AND CONTEMPORARY DISASTER PREPAREDNESS AND RESPONSE

Major storm events can cause widespread devastation to property and infrastructure systems, creating additional challenges for the response and recovery efforts of flooded libraries and archives. Staff from New York University (NYU) Libraries' Barbara Goldsmith Preservation and Conservation Department experienced these challenges when responding to the flooding of two collections in New York City after Superstorm Sandy: NYU Ehrman Medical Library and a private collection of Irish-Americana. Widespread and prolonged electrical outages, as well as damage from the force of the storm surge, required adjusting existing emergency plans and rethinking preparedness activities.

PREPAREDNESS TIPS

- Predefine collection priorities. Predefined and recorded collection priorities enable efficient allocation of recovery resources, insuring that resources are not wasted recovering easily replaceable materials.
- Consider superstorms in risk management. Assessments should include the risk of major storm events and 100-year floods. High-priority collection items must not be stored in flood zones or basements.
- Keep paper copies of plans. Updated paper copies of emergency plans must be periodically distributed to staff for safekeeping in both homes and offices.

SUPPLY TIPS

- Head lamps and lanterns: Recovery activities during prolonged electrical outages require light sources that facilitate work, such as headlamps and battery-powered lanterns, as well as extra batteries.
- TEK-wipes: A nonwoven polyester/cellulose blend, TEK-wipes are a sustainable alternative to blotters and paper towels. Available in rolls or small sheets, TEK-wipes are inert, washable, reusable, highly absorbent, and have excellent wet strength.
- Personal protective equipment (PPE): Stock lots of personal protective equipment (especially gloves) for staff working on response and recovery, as well as for administrative and curatorial staff who may visit the site.
- Power supply: An independent power supply, such as a generator, will greatly support response and recovery efforts. Understanding local electrical power systems and possible alternative power sources can aid in identifying sites for triage and freezing.

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RENATE MESMER

TIPS: MATERIALS AND TECHNIQUES FOR MOUNTS, ENCAPSULATIONS, AND BOOK SUPPORTS

MOUNTING A TWO-PIECE VELLUM MANUSCRIPT ON A SLIDING MECHANISM

Storage space in museums is often very tight. This 17th-century iron-gall-ink vellum manuscript had been cut in half for unknown reasons. The manuscript was folded, wrinkled, and distorted, and the iron-gall ink was flaking (figs. 10, 11). The vellum was humidified and carefully flattened, and the flaking ink was consolidated. In order for the reader to view and study the item as one piece while minimizing the amount of storage space needed, the manuscript was housed in a folder made from corrugated board (fig. 12) with the halves mounted on opposite sides (fig. 13). One half was mounted on a sliding mechanism made from a wide silicon-coated Mylar belt wrapped around heavy cardstock or museum board. The two halves of the manuscript were mounted with narrow strips of polyester film, which were laced through the mounting support to the back. A tab allows readers to easily slide one half of the vellum manuscript until it is lined up with its opposite part (fig. 14).

MOUNTING A WAX SEAL

Wax seals at the Folger Shakespeare Library are often mounted using strips of folding box board (fig. 15). The folding box board is scored to the thickness of the seal (fig. 16) and cut

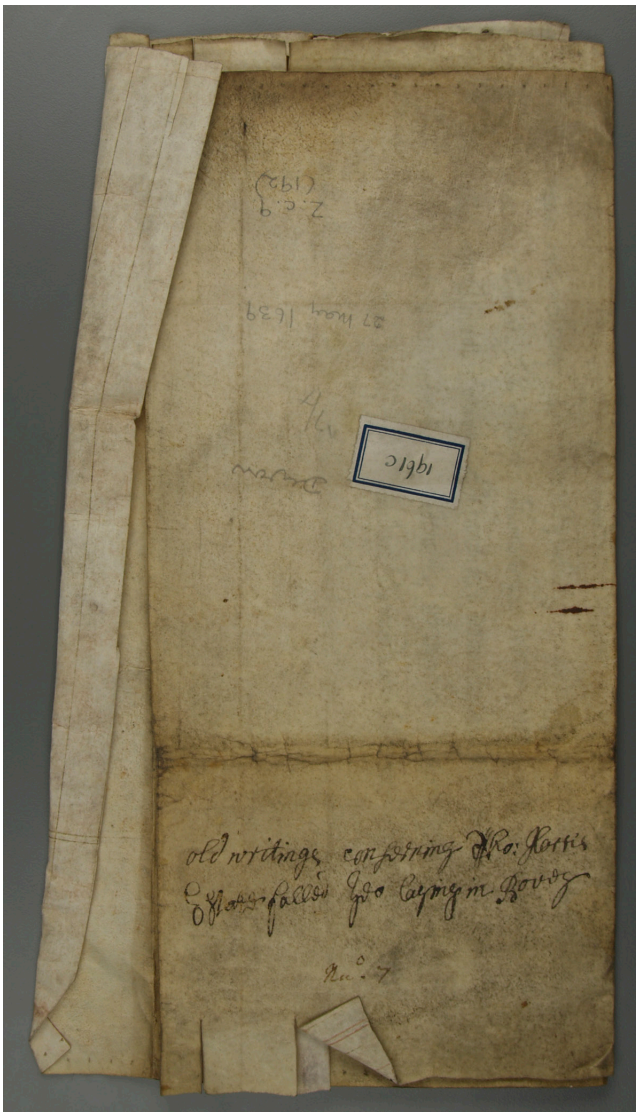

Fig. 10. Folded vellum manuscript before treatment

Fig. 11. Opened vellum manuscript before treatment

Fig. 12. Closed corrugated-board folder from Conservation by Design

Fig. 13. The two halves of the manuscript mounted opposite to each other

Fig. 14. Right half of the manuscript lined up with the left half using the sliding mechanism

Fig. 15. Wax seal mounted to a backing board using folding box board from Conservation by Design

into a strip, leaving excess material beyond the scored line. Incisions are cut up to the scored line (fig. 17) so that the board can be folded and molded around the seal. Half rounds or short strips can accommodate the unevenness of the seal (fig. 18). The folding box board is flexible when pulled away from the seal and allows for safe and easy removal of the seal from the mount if needed.

ULTRASONIC WELDING WITH POLYESTER FILM AND HANJI PAPER

Flower petals found loose in a 17th-century cookery and medicinal recipe book (fig. 19) needed to be safely attached in the book in their original positions. The petals were sandwiched between pieces of Berlin Tissue and encapsulated in 3-mil polyester film with a medium-weight Hanji paper hinge (fig. 20). The encapsulated petals were reinserted in their exact original position by tipping the paper hinge into the gutter of the page with paste (fig. 21).

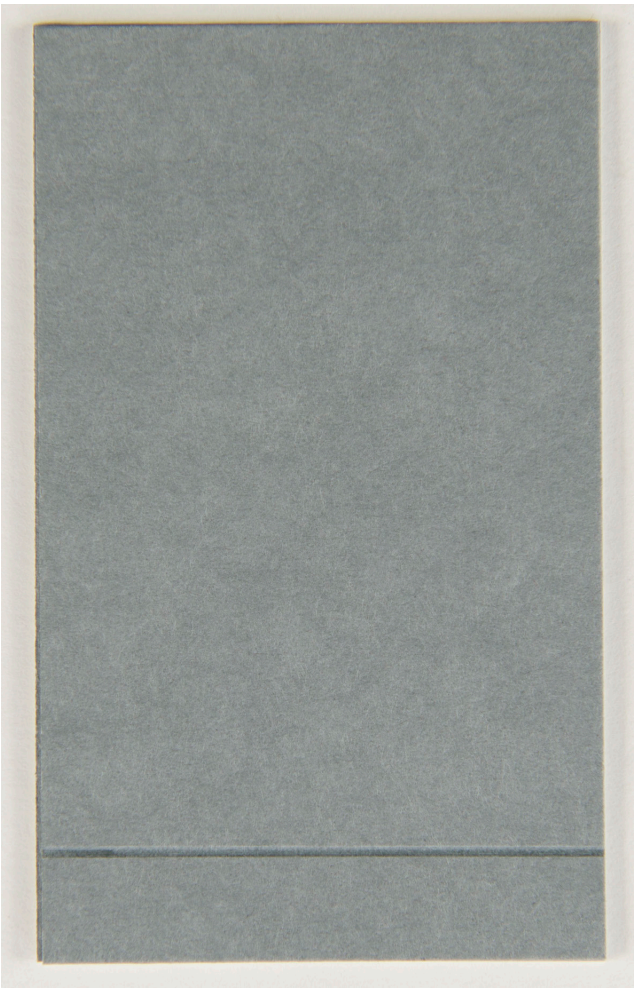

Fig. 16. Step 1: The folding box board is scored to the thickness of the seal (here, the distance between the bottom edge of the board and the fold line).

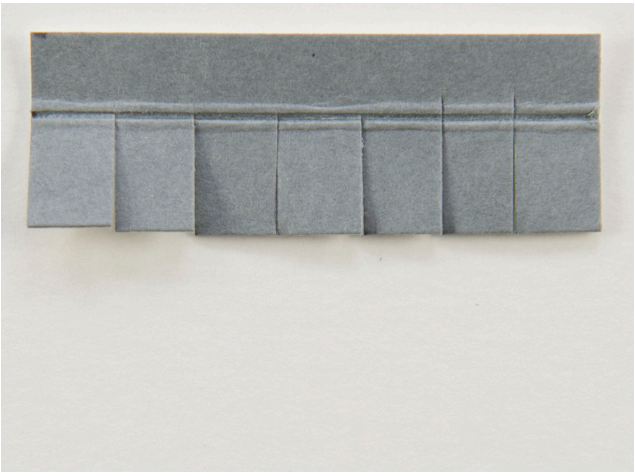

Fig. 17. Step 2: A strip is cut wider than the seal thickness, with the scored line running along it, and incisions are cut in the excess to allow the strip to bend.

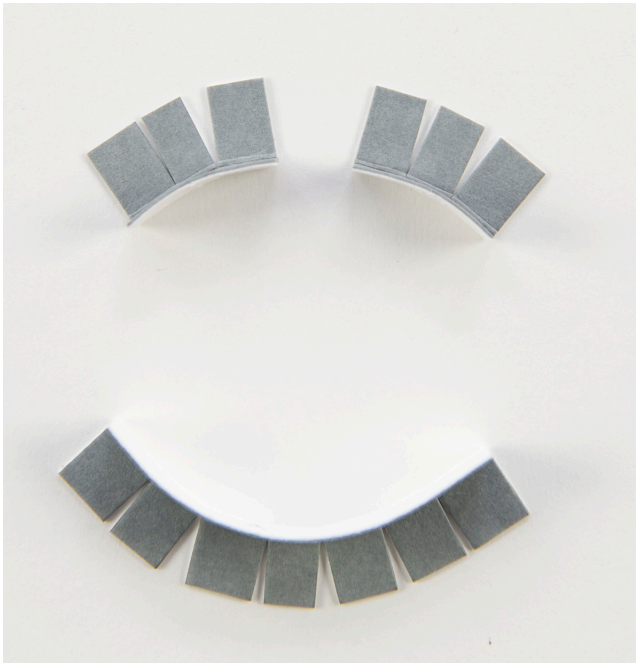

Fig. 18. Step 3: Tabbed strips are cut to length and bent to accommodate the shape of the seal.

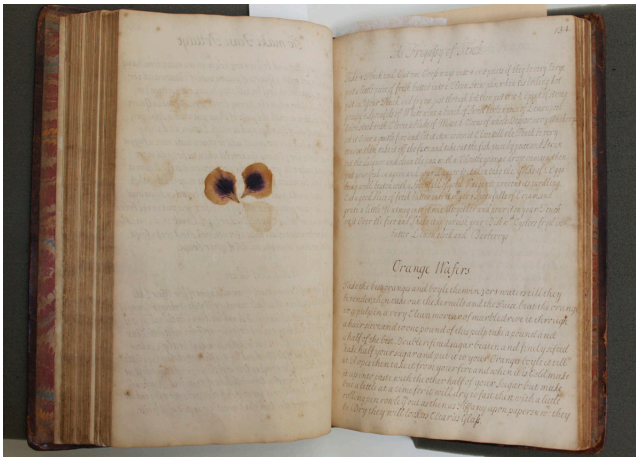

Fig. 19. Flower petals in the book before treatment

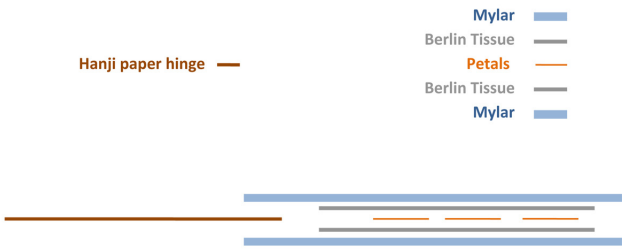

Fig. 20. Diagram of encapsulation assembly. The Berlin tissue is from Gangolf Ulbricht in Germany.

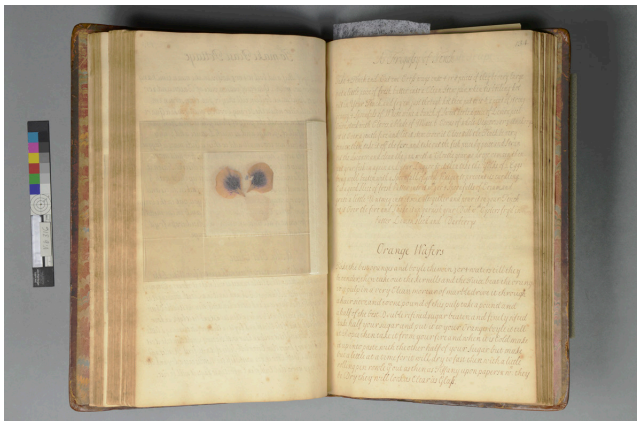

Fig. 21. Flower petals encapsulated after treatment

Fig. 22. Fragile book supported by an adjustable book cradle made from corrugated board

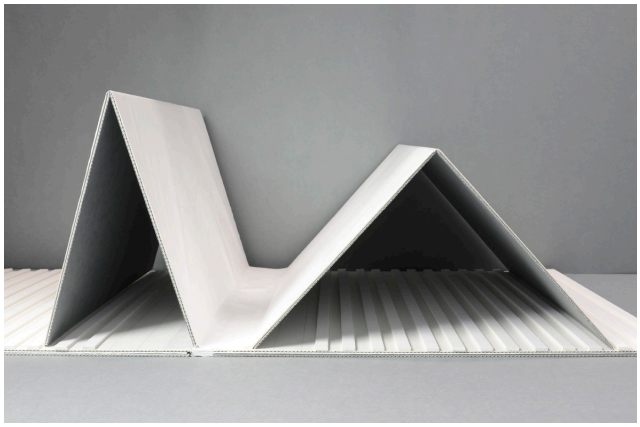

Fig. 23. Folding legs make the cradle fully adjustable

ADJUSTABLE BOOK SUPPORT FOR EXTREMELY FRAGILE BOOKS

In order to reduce handling of a fragile item, an adjustable book cradle made from corrugated board can be built to fit and house the item while work is ongoing (fig. 22). Two folded pieces of corrugated board support the book boards. They are mounted spine-width apart to the base of the cradle and draped with Tyvek to protect the book cover. Strips of a thick and sturdy material spaced evenly across the corrugated-board base allow the positions of the folding legs to be adjusted (fig. 23).

CLEARING AN INCORRECT FOLD IN VIVAK

An inexpensive embossing heat tool (Marvy Uchida) can be used to heat up an incorrectly placed fold in Vivak (PETG, polyethylene terephthalate). The fold will start clearing around 220°F. See video clip at http://youtu.be/oCnawlrSi3g.

ACKNOWLEDGMENTS

I would like to thank Christa Gattringer, Jana Dvorakova, Christina Amato, and Alessandro Scola for their help as interns working on these various items. I would like to thank Dominique Riley and Manfred Mayer for sharing their ideas with me. I also would like to thank Linda Hohneke and Jennifer Evers for proofreading.

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KAREN L. PAVELKA

TIP: OIL-ABSORBENT PADS AS USEFUL TOOLS FOR DISASTER RESPONSE

During a Spring 2013 class on disaster-response techniques, the students designed a water event and a fire event (fig. 24). Hurricane Sandy was very much in the news when the class began, which inspired the students to add motor oil to the exercise. For the mock water disaster, objects were soaked in tap water, lake water retrieved from Ladybird Lake in Austin, Texas, and seawater fabricated with Instant Ocean, a commercially available blend of salts. Duplicate batches were created with motor oil added to each batch.

Cleaning the motor oil proved to be difficult. Oily objects were rinsed in soapy water, then clean water, but this was only somewhat effective. Then Rebecca Elder, a colleague, found "scavenger pads" in the Grainger catalog. After these had been ordered and tested, they were found to be somewhat useful for containing and controlling the oil. More importantly, they allowed the oil to be disposed of more safely and allowed less of it to go down the drain.

Fig. 24: Class members with respirators

The pads, made of polypropylene fibers, attract the oil and repel water. They are designed to be floated on the oil-contaminated water; when they become saturated, they can be removed and replaced. In tests with water and oil in beakers, they seemed to be effective and removed virtually all the oil. The pads were also tested on oily paper, books, and ceramics, and while they did not poultice oil from cellulosic materials as hoped, they were less messy than paper towels, largely because they contained the oil without the water.

Searching "oil absorbent pads" on any search engine will produce multiple suppliers. The pads come in a range of qualities, from rough to smooth, and some suppliers will give samples. No brand comparisons have yet been made. The pads are also relatively cheap; ordered through the University of Texas system, the 16 x 20-inch pads cost about $0.70 each.

The small experiments the class did are described on the web at www.ischool.utexas.edu/~pavelka/Oil_scavenger.html. The work is more anecdotal than scientific, but it may be useful. No more tests are planned with the pads because it's tiresome to clean up oil in the lab.

ACKNOWLEDGMENTS

Thanks to Emily Rainwater for presenting this tip.

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SHELLY SMITH

TIP: ACTION BIAS

As a conservator in a public research library, the author is routinely asked to talk to non-conservators (other library professionals, members of the general public) about conservation. For many years, these presentations have ended with a quotation: "Don't just do something, stand there." These words from the White Rabbit in Walt Disney's *Alice in Wonderland* (1951) are meant to convey that the urge to do something with damaged materials—repair a torn page with pressure-sensitive tape, glue a loose bit of cover with white glue—can sometimes cause more harm than good. It's important to take the totality of the information into account before deciding on a course of action.

In the business world, this urge to just do something is called "action bias," and it's generally thought of as a positive trait: a way to engage, to encourage performance, and to inspire new thinking. However, action bias can also be detrimental. For example, a person might feel an obligation to act due to the influence or expectations of others (whether perceived or actual), even if evidence exists that it is better not to act.

This can be illustrated with the example of a soccer goalkeeper. In a penalty-kick situation, a goalkeeper must choose an action (to stand or to dive to one side of the goal) before gathering enough data (which way the ball is headed) to support that action. Statistics show that standing in the center of the goal (doing nothing) would lead to the most success (Bar-Eli et al. 2007). However, the expectations of both the goalkeeper and of the spectators make it nearly impossible to just stand there and not attempt to block the kick.

Imagine an analogous situation in which a conservator is presented with a damaged object. The urge is to solve the problem; the conservator knows s/he can do the work, and the curator wants it done. But is doing something the best course of action? Perhaps the "damage" is a feature of the artifact, and conservation would irreversibly alter it (e.g., evidence of artist's intent in an unfinished artist's book, or historic value in the case of dark marks and ingrained grime on Dickens's personal reading copy of *A Christmas Carol*). The best choice for the object at that particular moment might be to do nothing. Sometimes doing nothing gives us time to wait for new and emerging research that could inform future treatment decisions. In addition, sometimes doing nothing is the best choice for everything else in the conservator's care: time spent on one object translates into time not spent on something else. In a world of limited resources (both time and money), conservators should consider action bias when deciding on a course of action. It is in their nature, education, and ethics to want to do something because they can or should, but they ought also to be able to give themselves permission to wait and see.

REFERENCES

Bar-Eli, M., O. H. Azar, I. Ritov, Y. Keidar-Levin, and G. Schein. 2007. Action bias among elite goalkeepers: The case of penalty kicks. *Journal of Economic Psychology* 28: 606–621. http://pluto.mscc.huji.ac.il/~msiritov/BarEliAzarRitovKeidarSchein.pdf (accessed 08/03/13).

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JUDITH WALSH

TIP: A SIMPLE SUCTION-DISK EXTENSION FOR TREATING BOUND ITEMS

A cheaply made, flexible extension for a table-mounted suction device was found to be useful in treating stains in bound materials.[1] A long strip of flexible plastic, such as polyester or polyethylene film, is folded over itself to become a channel to pull a vacuum from the tabletop suction device to the area below the stain.

To make one, cut a strip of plastic about 4 or 4 ½ inches wide, and two times as long as needed to extend into the volume to be treated. Fold the strip in half to locate the center, and cut two rectangular openings as illustrated in figure 25.

Next, assemble two layers of screening (thicker Pecap or window screening) and one layer of thick polyester web (Hollytex). These should be about ½ inch smaller than half the plastic strip in both dimensions (fig. 26).

Fold the plastic strip around the two layers of screening and polyester web, and seal the three open sides with tape (fig. 27).

Position one opening in the channel above the suction disk, and feed the length of the strip under the page to be treated, as seen in figure 28. The other opening will fall below the stain to be treated. The double layer of screening prevents the channel from collapsing as the air is pulled through it. A sheet of filter paper works well as the absorber in the system; a blotter is often too dense.

NOTES

1. This device was invented by the paper-conservation majors in the Buffalo Class of 2012: Lauren Calcote, Gwenanne Edwards, Saori Kawasumi, and Kesha Talbert.

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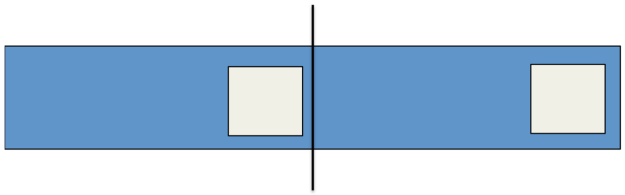

Fig. 25. The plastic channel showing the placement of the two openings to be cut: the openings should be smaller than the dimensions of the suction device.

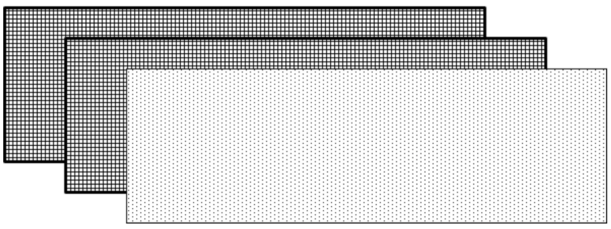

Fig. 26. The three layers of material to be placed inside the plastic channel: the layers allow the passage of air through the plastic to the suction device.

Fig. 27. The assembled package in cross section: note the tape at the edges.

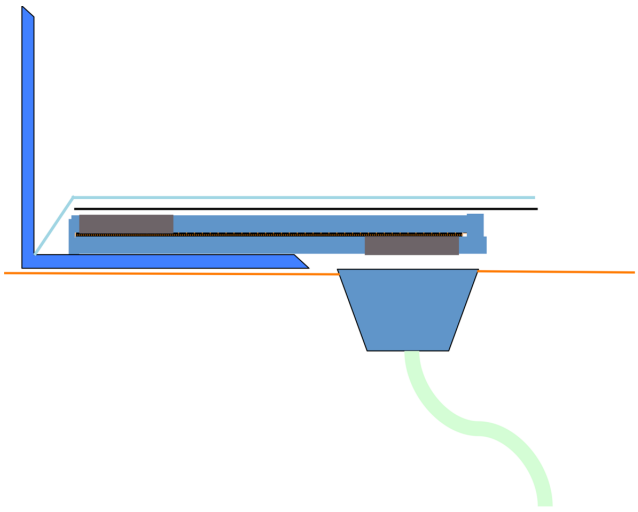

Fig. 28. The extension device in place under a leaf in a bound volume, extending down the text block to the table-mounted suction device. A piece of absorbent filter paper is placed under the stained leaf.

JUDITH WALSH

TIP: A WICKING SYSTEM FOR REMOVAL OF SOLVENT-SOLUBLE STAINS

In this system for stain removal, a paper object sits in contact with solvent that can only evaporate along a paper wick. The combination of a long exposure time and the strong wicking action of the evaporating solvent draws the stain out of the paper into the wick at the drying interface.

Make a small tray of polyester film slightly larger than the item to be treated. Secure the corners. In a fume hood, line the tray with cotton blotter, and wet the blotter with the appropriate solvent. Create a wick by creasing a piece of Whatman filter paper that will sit below the stain, and extend it above the edge of the tray at the side closest to the stain (fig. 29).

Place the stained item on the solvent-saturated blotter, with the stain positioned over the filter-paper wick. Cover the item with another sheet of polyester film the same size as the tray, so no solvent will move out of the tray except through the wick (fig. 30). Wait patiently. As the solvent evaporates, it will carry the soluble products up the wick to a tide line at the drying interface.

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Fig. 29. Tray of polyester film containing blotter and sufficient solvent to saturate the blotter. The creased filter-paper wick is seen at the right.

Fig. 30. The object is positioned on the blotter with the stain over the wick. A sheet of polyester film rests over the item, and the solvent eventually evaporates up the wick.