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“Select Tips & Tricks in Paper Conservation”

Book and Paper Conservator

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Book and paper conservators are constantly moving from one project to another in order to meet deadlines, but also to make the best use of time, materials, and techniques that can facilitate and/or improve conservation efforts. We cross reference treatment techniques to see if one application can transfer to another. We prepare our batch of recipes and potions, and we work across materials and conservation problems. To those on the outside, it may appear like a chaotic whirlwind as in this collage of me in my old Folger Shakespeare Conservation Studio captured by Franz Jantzen and called “The Conservator”.



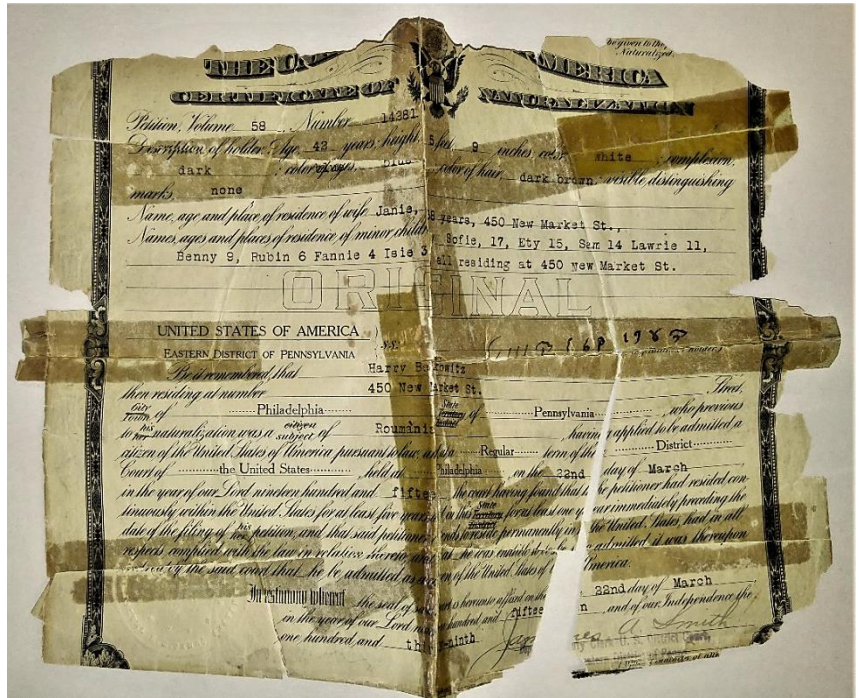
(Photo by Franz Jantzen, “The Conservator”)

There are many conservation challenges that befall conservators. This paper presents three tips and tricks that have been developed over 40 years of experience which has transformed some of the more vexing issues into less cumbersome operations.

THE PROBLEM OF PRESSURE SENSITIVE TAPES

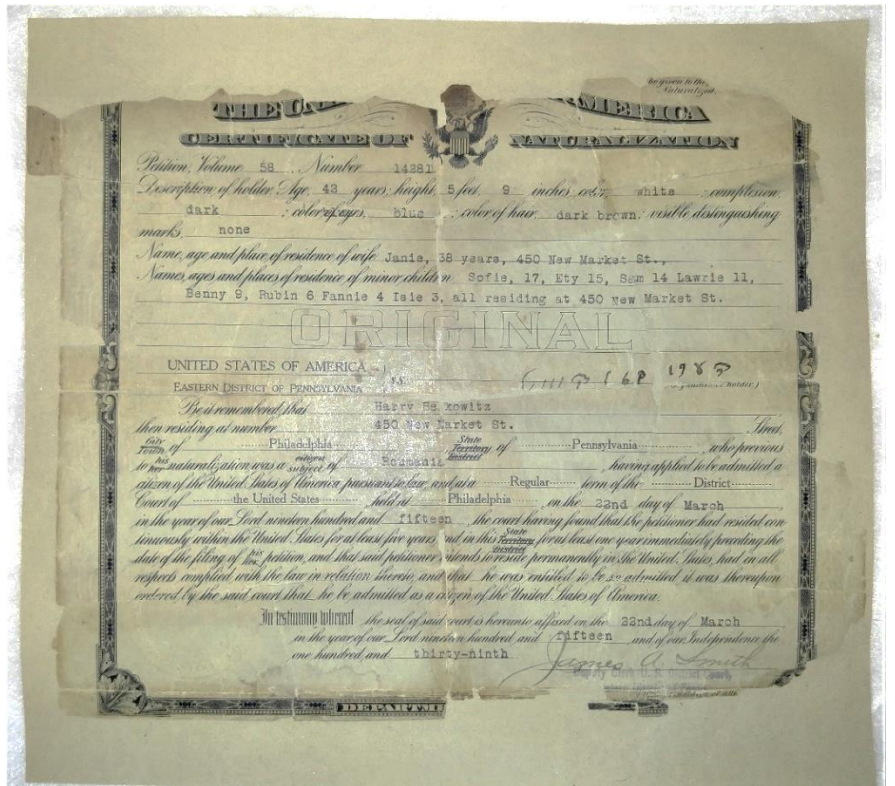
There are two issues associated with pressure sensitive tapes: the carrier and the residual adhesive. In Fig. 1a below, the tape carrier remains at the top right section of the document. On the left side, residual staining from the adhesive remains. This staining needs to be removed before any mending can take place.

BEFORE
Fig. 1a



AFTER
(stains reduced and item leaf cast)

Fig. 1b



There is a body of literature on pressure sensitive tapes and the associated supporting history of their manufacture, the most notable and comprehensive work has been conducted by Linda Stiber-Morenus and Elissa O’Loughlin in their tape removal workshops.

Fig. 2

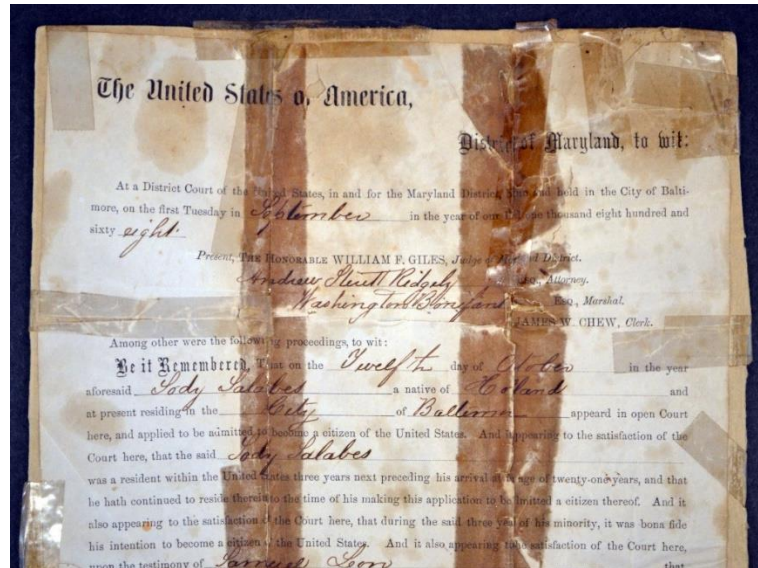


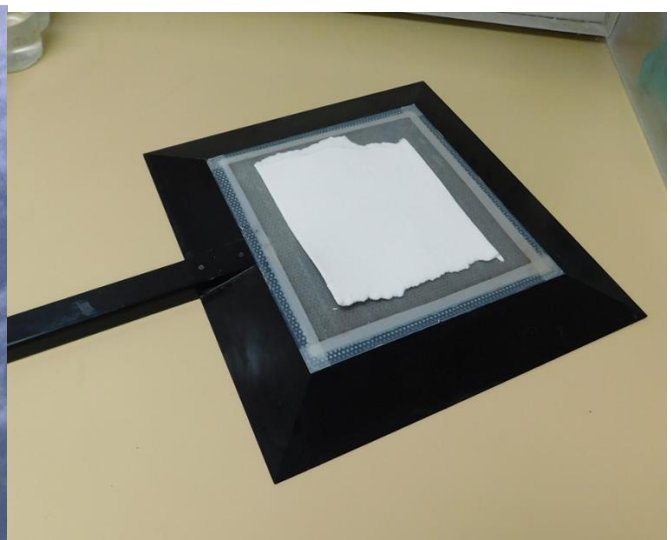
Figure 2 shows a document repaired with virtually every known type of pressure sensitive tape. How should a conservator navigate the array of solvent options effectively and efficiently?

Faced in the mid-1980s with numerous archival documents, prints and manuscripts “mended” with different types and ages of pressure sensitive tapes, typical treatment included the use of poultices with the standard repertoire of solvents— toluene and acetone. These solvents had varying degrees of success. In addition to the trial and error of having to determine which solvent would work on which type of adhesive, there was the typical messiness and slowness with which poultices worked.

After one of the Smithsonian sponsored vacuum table workshops by Peter Mecklenburg of Museum Services, we developed a high vacuum suction platen that could focus the area of concentration. It was affectionately called “The Stealth Sucker”.

Fig. 3a

Fig. 3b



The pump of the suction platen pulls a pressure of 23 inches of mercury (a near complete vacuum). This action creates tight contact with the blotter paper used to capture the stain below. This enhances capillary action by pulling any solvent, solubilized material or adhesive, efficiently and effectively away from the surrounding area.



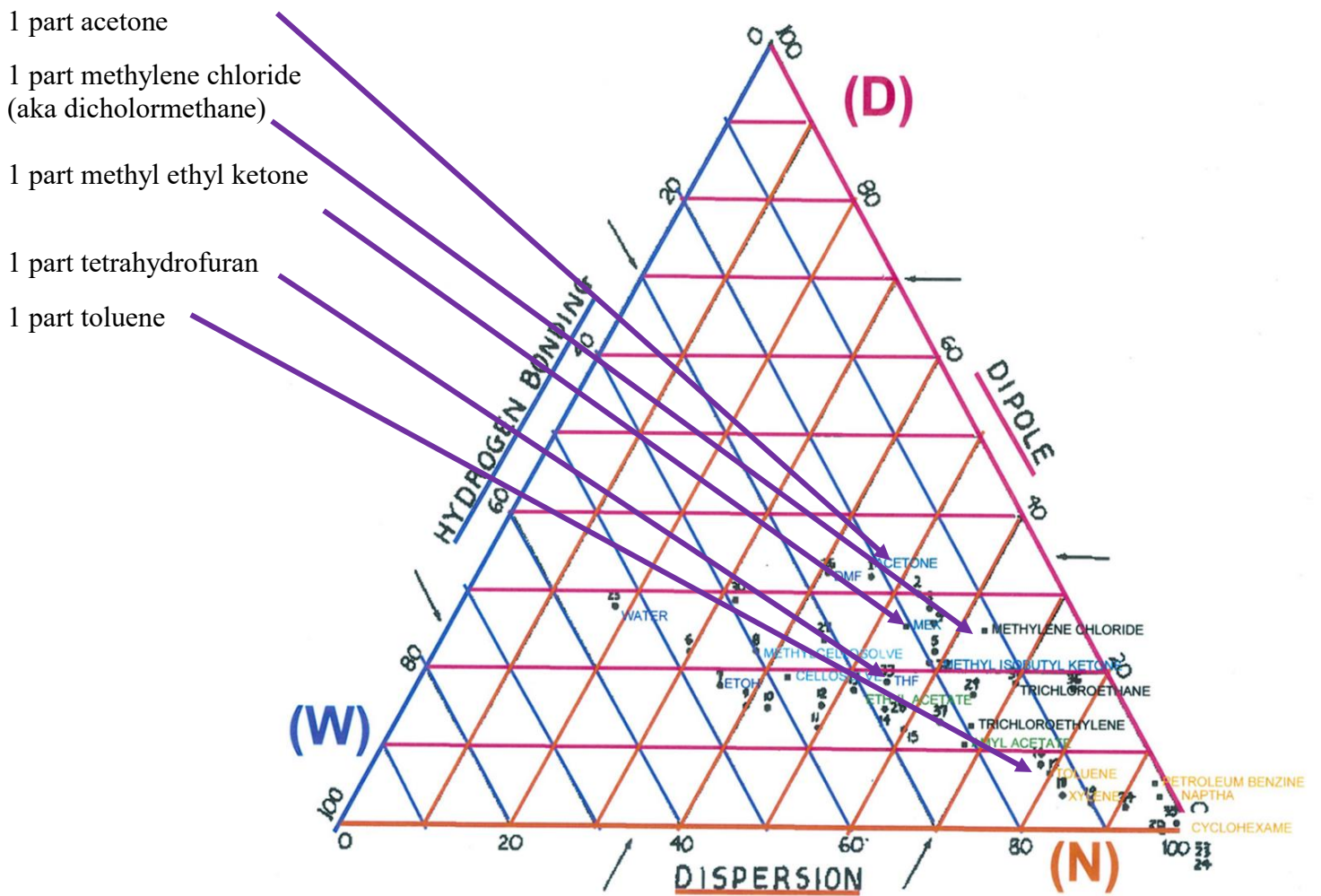
Fig. 4

Solvent gels today are greatly improved and replace the use of fuller's earth or attapulgite clays. In the case of adhesive tapes, however, the suction platen achieves the desired result with greater efficiency and effectiveness.

There are times when the standard solvents just do not work or works on one type of adhesive tape but not on another. Sometimes the adhesive is very slow to dissolve. Trial and error in identifying the appropriate solvent is time-consuming endeavor when having to deal with decades of different and often unidentifiable types of tapes.

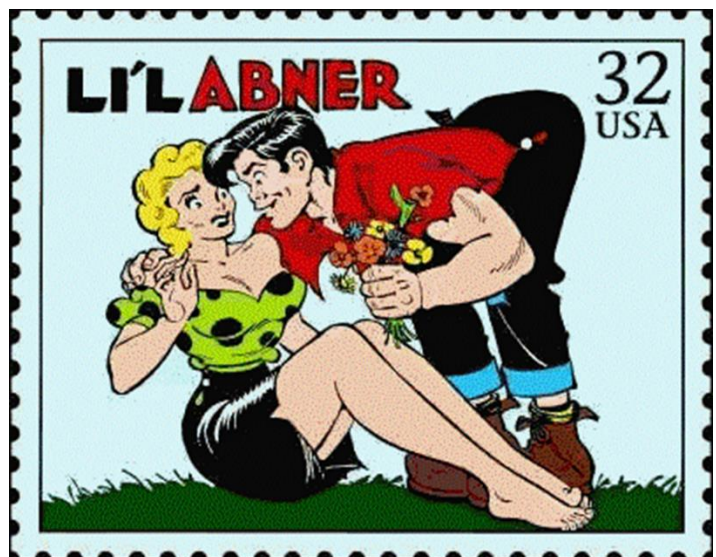
Working from the Teas chart, there is a combination of five solvents that work remarkably well together to solubilize virtually all the types of tape adhesives encountered.

Fig. 5 The Teas Chart



The name used for my concoction is “Kick-a-Pooh-Juice” after the Li'l Abner cartoon.

"a liquor of such stupefying potency that the hardiest citizens of Dogpatch, after the first burning sip, rose into the air, stiff as frozen codfish. It was said to be an elixir of such power that the fumes alone have been known to melt the rivets off battleships."



This combination of solvents should only be used with proper ventilation and safety precautions. In addition to these precautions, it was important to develop a controlled stream of delivering the solvent cocktail that worked with the continuous pull of the “Stealth Sucker”.

Nalgene pipettes (inert to all the solvents used in paper conservation) worked well in allowing for a reservoir of the cocktail to be sealed in the bulb and limit exposure to toxic vapors. But there was one last modification to be made.

Fig. 6 Nalgene pipettes



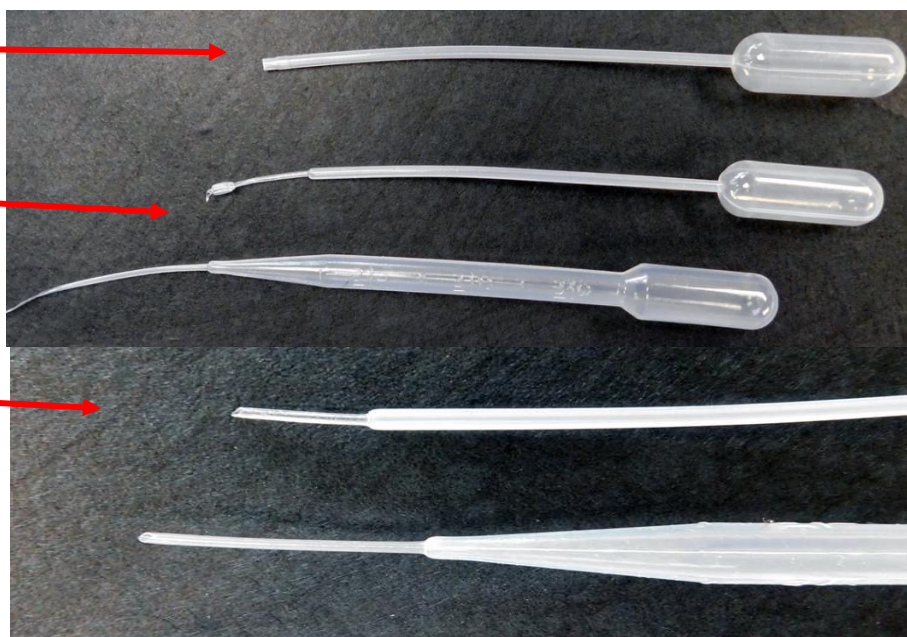
The natural openings of pipettes made controlled flow difficult. After some experimentation, it was easy to determine that the pipettes worked better when the opening was made narrower and the channel length extended.

Fig. 7 Modification to Pipettes

Top: Unmodified pipette

Middle: Stretching the tip to form a longer channel

Bottom: Ends bevel trimmed



To stretch the pipettes, bite into the tip and gently pull so that the Nalgene stretches to the desired length. The longer the channel the slower and better control of the flow.

Fig. 8



Tips for using the suction platen

1. The edges of the blotter should be torn and not cut to prevent a hard edge. This allows the polyethylene sheet to drape smoothly over suction platen.

2. The polyethylene sheet should be cut larger than platen grid to ensure a good seal at all edges.

3. The cut out in the polyethylene sheet should be as small as needed for the area to be worked on. Keep several cut-out sizes around and pencil in the perimeter of the opening.

Fig. 9



BEFORE
Fig. 10 a

THE UNITED STATES OF AMERICA
DEPARTMENT OF NATURALIZATION

dition, Volume 58 Number 14381

Description of holder: Age, 43 years; height, 5 feet, 9 inches; color, white; complexion, dark; color of eyes, blue; color of hair, dark brown; visible, distinguishing marks, none

Name, age and place of residence of wife: Janie, 38 years, 450 New Market St.,

Names, ages and places of residence of minor children: Sofie, 17, Ety 15, Sam 14 Lawrie 11, Benny 9, Rubin 6 Fannie 4 Isie 3, all residing at 450 New Market St.

ORIGINAL

UNITED STATES OF AMERICA)
EASTERN DISTRICT OF PENNSYLVANIA)
Be it remembered, that)
Harry Be. kowitz)
residing at number)
450 New Market St.)

1987
(1117 16P (signature holder)
Fred

AFTER
Fig. 10b

THE UNITED STATES OF AMERICA
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DISPOSABLE VAPOR TRAYS

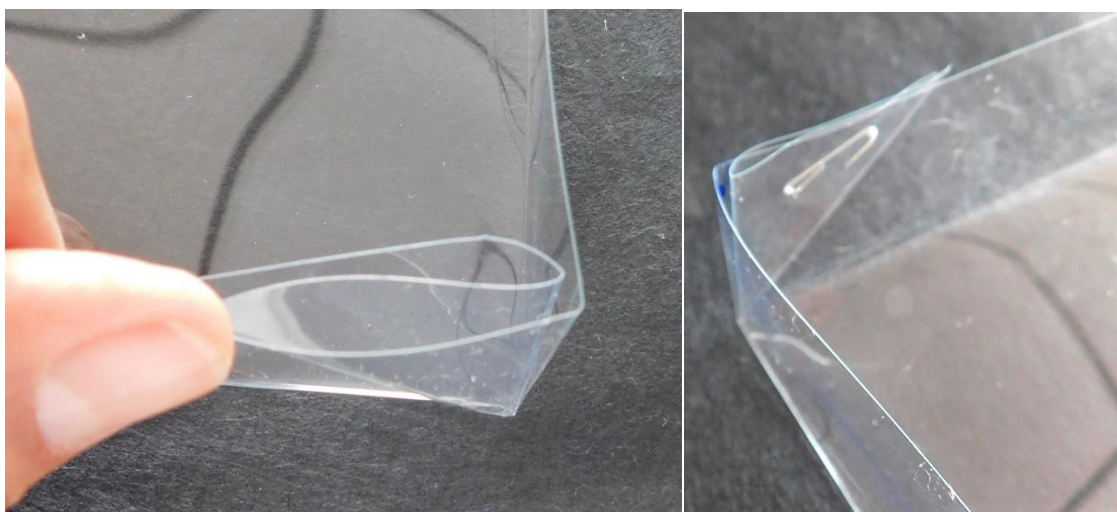
There are times when one needs to work with a solvent in order to pre-treat an area or the entire item. A vapor tray provides a sealed chamber preventing vapors from evaporating and the conservator from being asphyxiated. There are three trays that will be made in this application. Each tray is made the same way and differ only in their dimensions and placement with respect to one another.

Fig. 11



The trays are made from 5 mil Mylar. They are formed by pinching all four corners of the Mylar, then folding the resulting pleat over to one side wall and stapling it near the top. Each tray is made consecutively larger and deeper than the one before.

Fig. 12



Tray 1: This tray contains the solvent and is the smallest of the 3 trays. It is just large enough to hold the artifact which will be submerged in the solvent.

Fig. 13



If the artifact needs only to be exposed to solvent vapors, one can fabricate a pleated perforated platform that sits inside of Tray 1. The platform is sized as needed to support the document. Its peaks rise higher than top of the solvent bath and the cut outs allow the vapor to rise through the artifact into the chamber. This platform is placed in Tray 1 and suspends the artifact over the volatile solvent avoiding direct contact.

Fig. 14

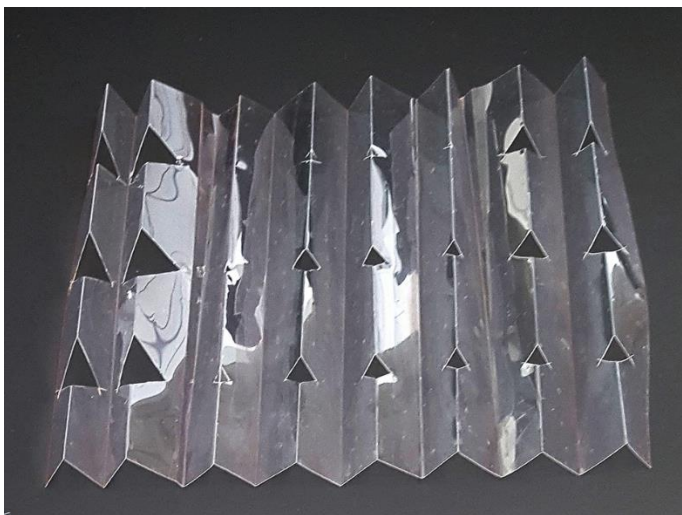


Fig. 15

Pleated perforated platform inside of Tray 1.



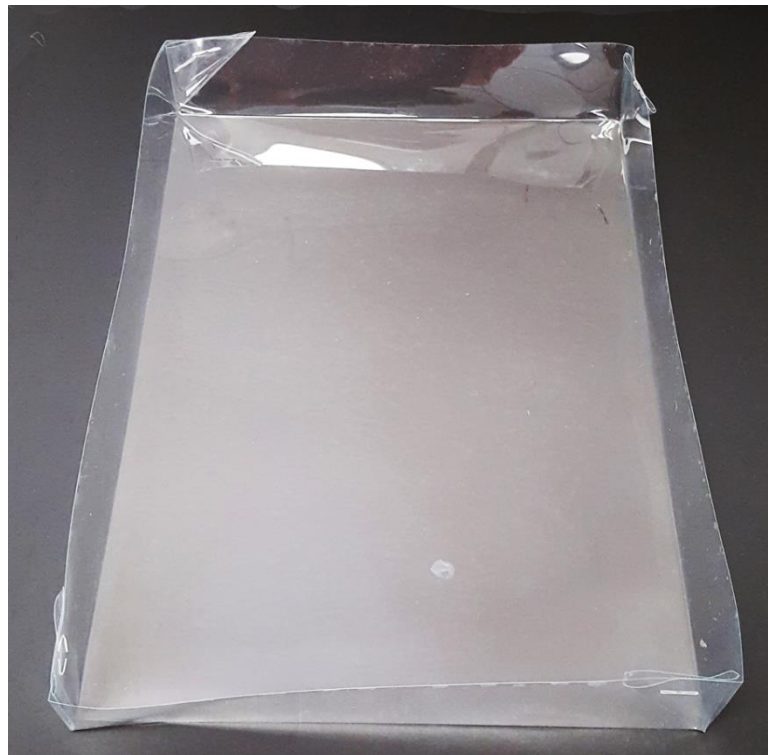
Tray 2: Made the same way, this tray is slightly larger and taller than Tray 1. This tray will be inverted to form the cover of Tray 1.

Fig. 16



Tray 3: The last tray is the largest and deepest of the three. It forms the bottom tray into which Tray 1 and its cover (Tray 2) will be placed. It will have about 1½” of water in it.

Fig. 17



When all trays have been made, the assembly, including the pleated perforate tray, will look like this.

Fig. 18a



Fig. 18b

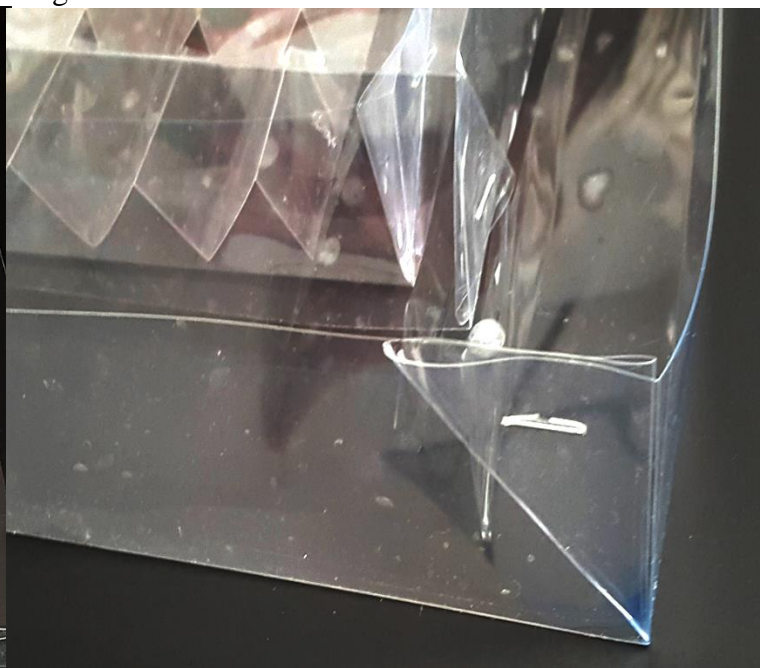
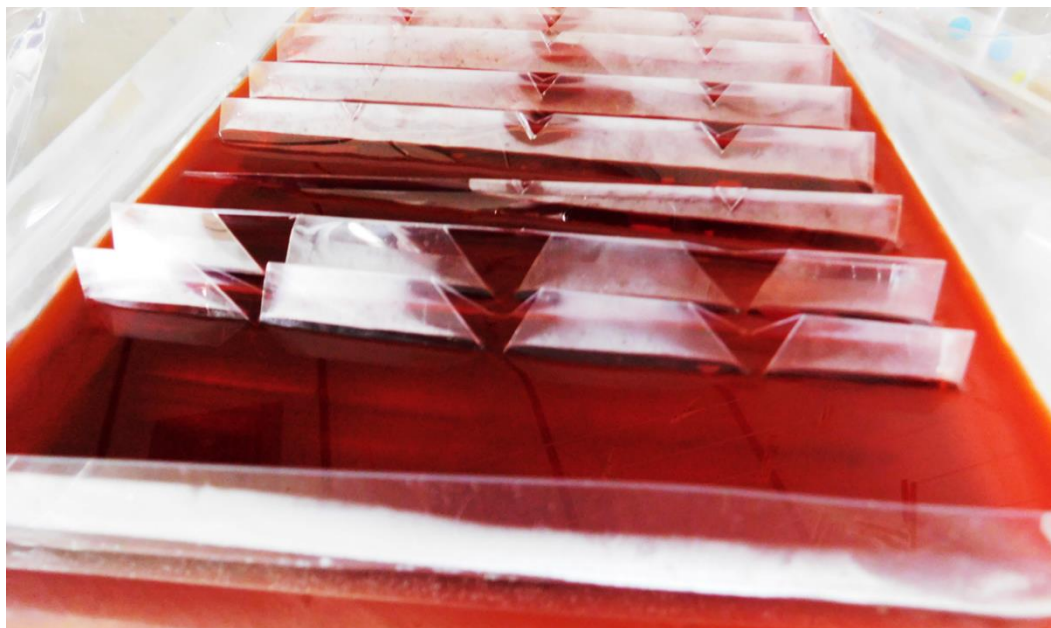
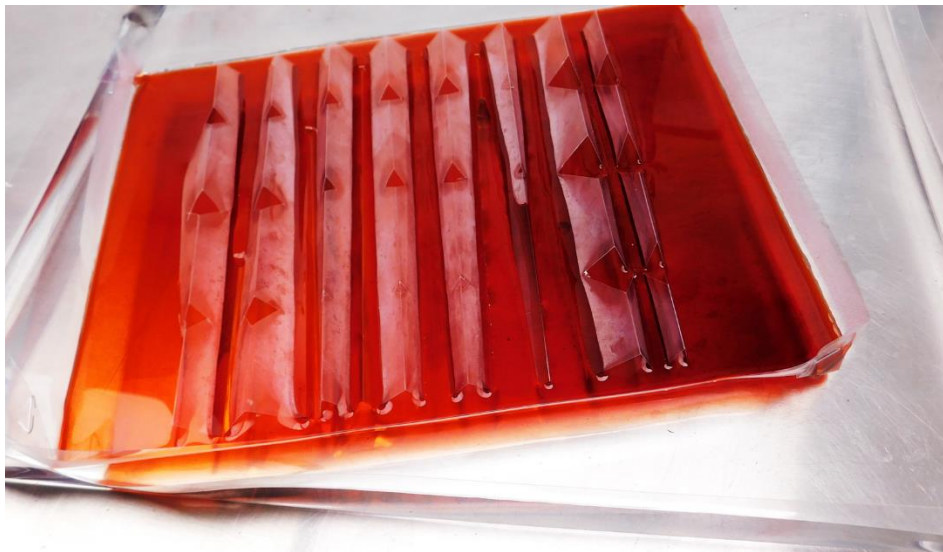


Fig. 19 Solvent in tray has been colored for the purposes of illustration only.



Tray 1 is placed inside Tray 3 (the largest tray) which is filled with water.

Fig. 20



The artifact is placed onto the pleated platform inside of Tray 1. Tray 1 is then placed inside the bottom tray (Tray 3) containing the water. Tray 2 is inverted over Tray 1 and sinks into the water of the bottom tray, thereby creating a sealed chamber for vapors.

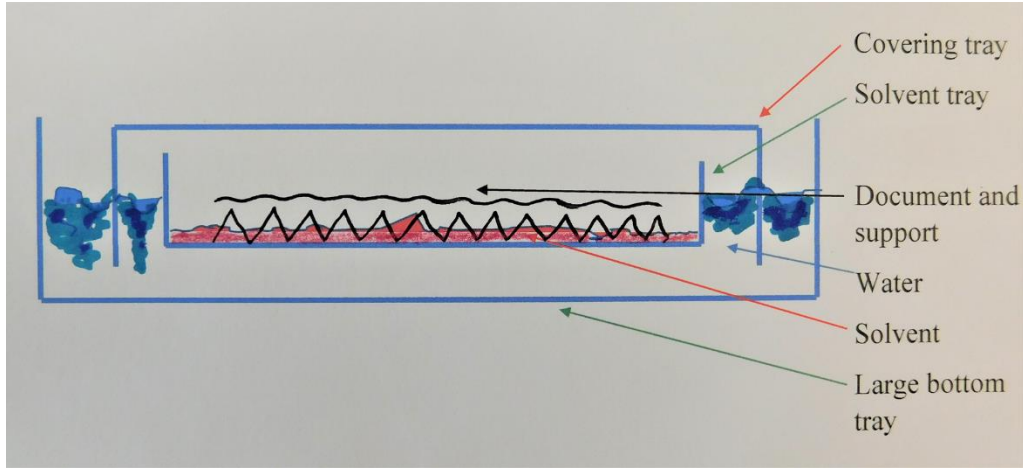
Fig. 21a.
Tray 1 inside Tray 3



Fig. 21b
Tray 2 inverted over Tray 1



Fig. 22 Diagram illustrating assembly



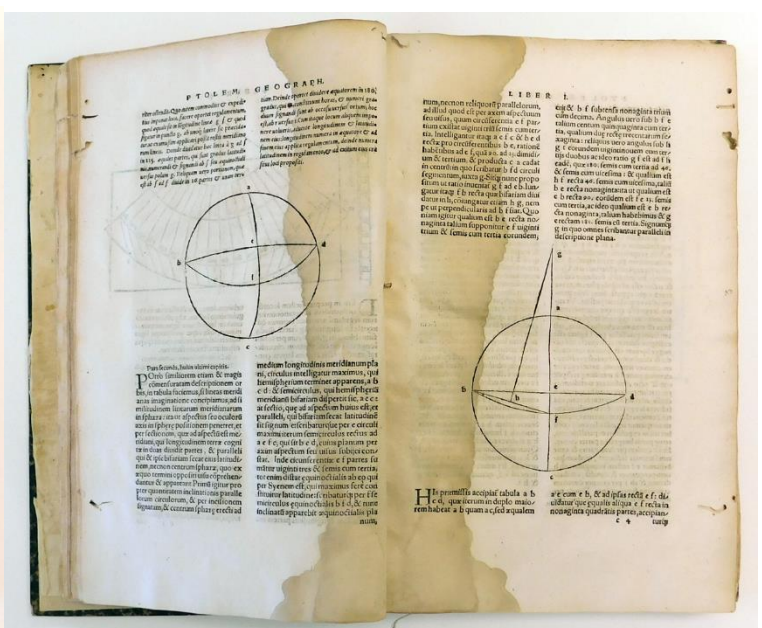
WASHING SLEEVES

Virtually all aqueous treatments can be hazardous to paper artifacts. In book and paper conservation having to handle hundreds of paper items in order to remove water stains, mold, and soluble acids, frequently requires immersing the paper into repeated baths of filtered recalcified water. If the paper is physically damaged with tears, losses or insect damage, those areas are particularly vulnerable during aqueous procedures.

Geographia Universalis Vetus et Nova, Complectens, Claudii Ptolemaei, Basel 1545

Fig. 23a

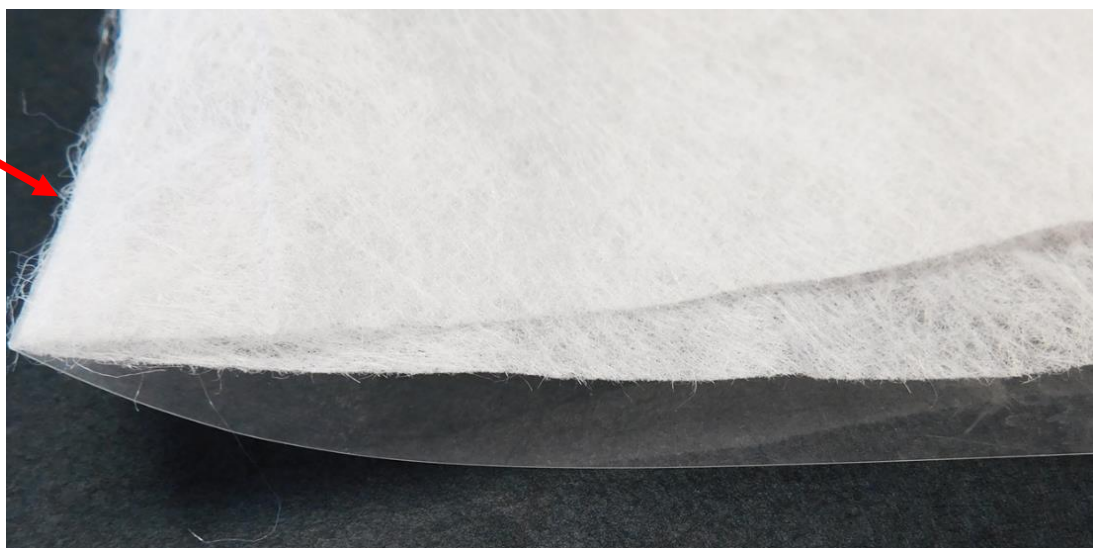
Fig 23b



To handle fragile paper artifacts safely while washing, a sleeve consisting of a 5 mil Mylar support and two layers of polyester Reemay or Hollytex welded along one side using either a heat welder or an ultrasonic welder can be made

Fig. 24

Welded edge



Even small fragments can be safely and efficiently handled while wet.

Fig. 25 a



Fig. 25b



Whether multiple pages of a book or multiple prints, batch washing like kind items, each item is safely nestled in its own protective sleeve.

Fig. 26a multiple pages of a book

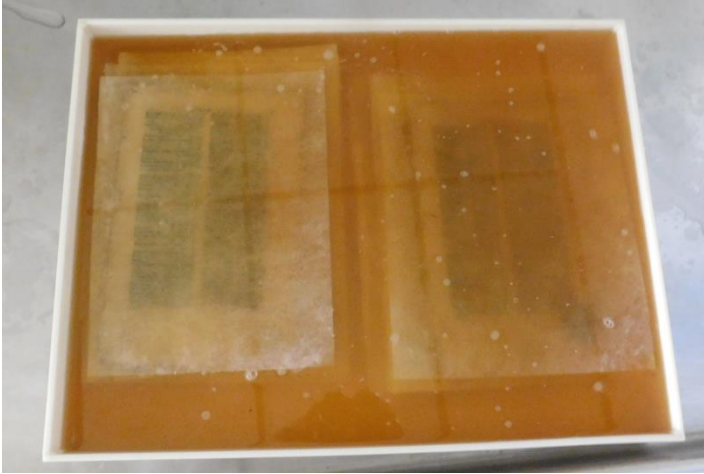
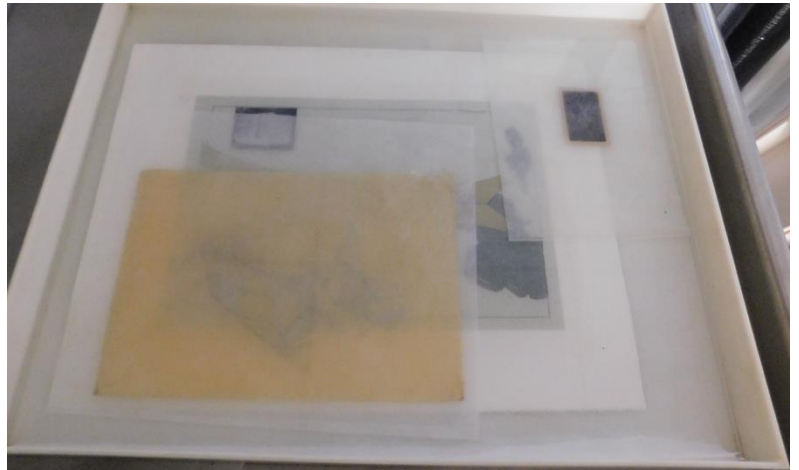


Fig 26b multiple prints



Rinsing can be done from the front or the back since the paper surfaces are well protected

Fig. 27a



Fig. 27b



When rinsing the underside of large sleeves, use a ridged acrylic ruler which offers support and minimizes the polyester sleeve from draping.

Fig. 28



When wet treatment is completed, sleeves can be drained on a line or flat on a screen prior to final flat drying.

Fig. 29



Washing sleeves are indispensable when handling oversized items by oneself.

Fig. 30a *Les Deux Amis* 1969, etching, aquatint, with carborundum print, J. Miro, 55 1/8" x 37 1/2"



Fig. 30b

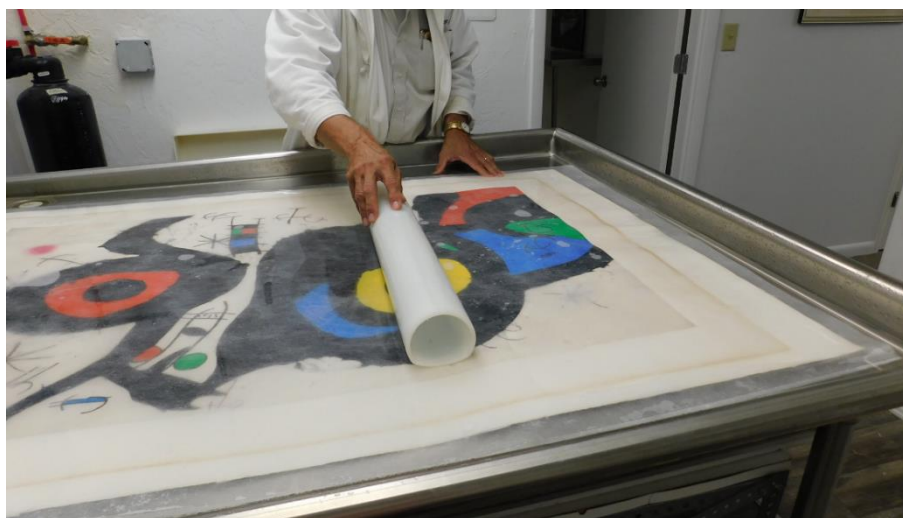


When washing oversized pieces, use an acrylic roller to ensure smooth and even working out of air bubbles in the bath.

Fig. 30c



Fig. 30d



Rinsing oversized items either on the recto or the verso is easily accomplished with the sleeve.

Fig. 30e



Fig. 30f BEFORE



Fig. 30g AFTER washing and stain reduction



These three tips and tricks I have found to book and paper conservators both handle artifacts with more ease and disentangle the solvent treatment challenges.

References:

O'Loughlin, E.M. *Pressure Sensitive Tapes and Our Cultural Heritage*, The Walters Art Museum, Baltimore, MD 2005.

O'Loughlin, E. M. and Stiber, L. "A Closer Look at Pressure Sensitive Adhesive Tapes: Update on Conservation Strategies" *Postprints, Institute for Paper Conservation Manchester*, U.K., 1992.