This open discussion took place during AIC’s 42nd Annual Meeting, San Francisco, California. The moderators organized the panelists, led the discussion, and recorded notes. Readers are reminded that the moderators do not necessarily endorse all the comments recorded and that although every effort was made to record proceedings accurately, further evaluation or research is advised before putting treatment observations into practice.
DEBRA EVANS
IN SUPPORT OF INVISIBLE INPAINTING
(WITH SUGGESTED MATERIALS FOR YOUR INPAINTING TROVE)

Since 1994 Jim Bernstein (master inpainter extraordinaire) and I have taught week-long Mastering Inpainting workshops to over 400 conservators. Our course was chosen by the AIC as the very first of its mid-career training workshops. I mention that because it goes to show the enthusiasm our colleagues have for this subject. In fact, inpainting might be the activity that the public is most likely to envision when you mention art conservation. Over the years, I have found our participants, almost without exception, to be striving for ways to achieve “invisible” inpainting. As a conservator of works on paper who works in a fine arts museum, this has routinely been my focus and our curators’ preference. In order to do seamless inpainting on paper, it helps to have an extensive inventory of inpainting materials.

a decision to remove old compensations that interfere with the original must be informed by the historic significance and quality of the repair, and any risk to the object during removal.

Finally, in recent years paper conservators increasingly are exploiting approaches that may reduce or remove the physical hand of the conservator. Such methods may utilize digital techniques to recreate design elements or employ temporary overlays or fills. Even subtly adjusting display lighting—or more dramatically—engineering sophisticated computer-controlled light projection systems as in the case of the recent and highly innovative “virtual restoration” of Harvard University’s Rothko murals1, may be the best solution to meet the aesthetic needs of an object with only limited conservator intervention.

NOTE

Fig. 1. Detail of an 18th-century etching by Giovanni Battista Brustolon, showing a prominent and visually distracting printing crease inherent from manufacture. Giambattista Brustolon, The Doge in the Council Hall, c. 1763, Etching, 44.2 x 55.7 cm, Philadelphia Museum of Art, 1985–52–1850.

Fig. 2. An Indian painting on paper before treatment, with an expansive loss and other damages (top). The same painting after compensation (bottom), which included a large insert with broad areas of the boldly-colored design integrated. Unknown artist, The Awakening of Trust (Vishrabhanavodha Nayika), 1694–95, Opaque watercolor and gold and silver metallic paints on paper, 20.6 x 26 cm, Philadelphia Museum of Art, 2004–149–25.

Fig. 2. An Indian painting on paper before treatment, with an expansive loss and other damages (top). The same painting after compensation (bottom), which included a large insert with broad areas of the boldly-colored design integrated. Unknown artist, The Awakening of Trust (Vishrabhanavodha Nayika), 1694–95, Opaque watercolor and gold and silver metallic paints on paper, 20.6 x 26 cm, Philadelphia Museum of Art, 2004–149–25.
When we conduct our inpainting workshops, we are always interested in learning the participants’ customary inpainting media. It’s not uncommon to hear from paper conservators who use just one system: watercolors, Caran d’Ache pencils, or pastels, for example. I believe that it is difficult to achieve good inpainting without a wide array of materials. That inventory is what saved the day in many an inpainting challenge. My dear buddy Jim long ago converted me to his philosophy of “More is More.” Art comes in incredible varieties and one medium definitely does not suit all. While watercolors and Carbothello pastel pencils might do the trick for paper conservators 90% of the time, it’s the other 10% where you’ll need expanded inventory to achieve success. I recommend the following:

- **More watercolors, made from many different pigments.** A good starter set is the 48 half pan set made by Schmincke. Swatch cards, painted to the edge of the card, work wonders for honing in on the closest color match.

- **A watercolor set compiled of a wide variety of blacks.** Essential for inpainting prints. Conventionally, watercolor sets will have only ivory black or lamp black. A wide range of black pigment half pans is now available for purchase individually from Kremer Pigments.

- **Specialty watercolor set for frames.** Also available from Kremer Pigments.

- **Specialty watercolor set for photographs.** Individually-compiled sets work better than the old retouch sets made by Schmincke and other brands.

- **Pastels and an array of applicators.** Cards with different pastel mixtures can be kept housed in Ziploc bags. Useful applicators are sable brushes (cut-off to work like stipplers), small swabs, dental paper points, and points of thin blotter.

- **Powdered pigments.** These are particularly useful for modifying colors from watercolor half pan sets or when an unusual color needs matching. Do obtain some titanium orange and see how often it is the “magic bullet.”

- **A variety of media and modifiers.** Methycelluloses, Aquazols, jun funori, gum Arabic, glass beads and platelets, and kaolin are just some of the materials that can be helpful.

- **Colored pencils of all sorts, both ordinary and pastel.** While Carbothellos get the most use in our lab, assorted brands have differing pigment strength, hardness and reflectance and will be useful for different projects. Separate sets comprised of all the earth tones of a particular brand are especially handy.

BECCA POLLAK
TREAD LIGHTLY; CREATING FILM OVERLAYS TO INTEGRATE DIMENSIONAL MEDIA LOSS

The frequent reality of inpainting on works on paper is that it is often not reversible or that its removal may further compromise the object. If the support is fragile or moisture sensitive, even the application of compensation materials may cause distortion and destabilize surrounding media. Losses in dimensional media such as impasto, crayon, or even intaglio ink can be very challenging to integrate because inpainting material must be built up in layers or a fill material manipulated in situ to match the topography of loss edges.

Two treatments recently performed at the Philadelphia Museum of Art illustrate the potential of overlay techniques to compensate media loss where other methods could not be used. A drawing by the artist Eddie Arning comprised broad areas of delaminating, brittle wax crayon with scattered existing flaked losses. As insecure media was consolidated, it became evident that even slight expansion of the paper fibers caused by minimal moisture or the pressure of a fine brush stressed the glossy paper coating and surrounding media. Therefore, compensation needed to be applied with no moisture or manipulation after placement on the fragile drawing.

The losses were ultimately filled with shaped inserts of dried Golden® acrylic paint (fig. 3). The acrylic was brushed out on Mylar to form a film of varying thickness. Small pieces were scored and peeled away from the Mylar before shaping with a micro-scalpel or by tearing the edges. The acrylic film was then carefully placed over areas of loss with tweezers or a damp brush and adhered to the support with no additional moisture. This straightforward method was useful for recreating both thickly applied media and thin, streaky passages with small inherent gaps. It minimized interaction with the fragile object and the fills could be easily removed with the tip of a brush slightly dampened with ethanol. Using a material different from the original had the added bonus of allowing the fills to be easily distinguished with close examination or analysis.

In creating mock-ups for the crayon drawing, a technique that had been introduced by Elissa O’Loughlin at the Walters Art Museum was also explored: creating a remoistenable film material by spraying a mixture of micro-cellulose powder and methycellulose onto Mylar. The dried films can be shaped and used as overlays to diminish the appearance of foxing on paper. While trying out this method it was observed that the cellulose slurry reticulated when sprayed on silicone coated Mylar and might have potential for filling surface damage in aquatints or collotypes. For this application the slurry was tinted with dry pigments and Golden® acrylic paint before spraying to make several black toned sheets.

The films were effective for filling gouges within the printed design on a damaged aquatint (fig. 4). Having several
sheets with varied reticulation patterns and tones makes it easy to match the line dimension, grain size and range of ink density surrounding a loss area. Abraded paper fibers were consolidated with dilute methylcellulose and the film was immediately placed over the loss. As with the drawing, the overlay can be adhered and easily removed without the colorant staining the support.

Although the more usual approach of consolidating, applying a barrier layer, and layering inpainting media may not be that much more time consuming for small areas of loss—it may be impractical for larger areas. While the reticulated films do require an initial time investment, they offer an alternative that may be ideal for moisture sensitive objects or broad areas of damage.

AMY HUGHES

COMPENSATION FOR LOSS IN A MODERN SCREENPRINT: REVERSIBLE SCREENED FILLS

The following case study was presented to encourage discussion regarding the difficulties of compensating for loss in screenprints. Samella Sanders Lewis’ [American, b. 1924] screenprint Arena (1942) is made up of 12 layers of inks that were actively cracking and flaking prior to treatment. After consolidation, the curator agreed that the work would benefit from reversible, textured fills, but suggested that fills were only needed for the six largest losses. A textured acrylic fill material was created by screening Lascaux 498HV through a handmade miniature silkscreen onto Japanese paper (fig. 5).

The most challenging aspect of this treatment lay in procuring a plain weave fabric with the appropriate interstitial size and thread thickness to create a screen pattern similar to the original silkscreen matrix. Thread thickness plays a crucial role in determining the distinction of the screen pattern and the height of its impasto. The selected fabric was stretched over a small (4” x 5”) window mat with tape to create the
screen. Lascaux 498HV was pulled through the screen onto thin Japanese paper using a disposable squeegee made from scrap mat board. The Japanese paper support had been taped down to a glass plate and primed with a thin brush-applied layer of Lascaux to reduce the paper’s absorbency and porosity. After screening the texture, the fill material was toned to match the original print using acrylic paint (fig. 6).

To cut the fills with precision, and to avoid the need for tracing directly on top of the fragile work of art, 1:1 photographic reproductions of the major losses were created in Adobe Photoshop. After cutting the fill material directly through the photograph with a sharp scalpel, the reverse of the shaped fill was pared to create a surface flush with the original. A secondary layer of gossamer thin Japanese paper was adhered to the verso of the fill by reactivating the Lascaux with acetone vapor. Relatively weak adhesion between the primary and secondary Japanese paper supports allows for ease of mechanical removal when or if the fills are no longer desired. Finally, the fills were pasted out with wheat starch paste, positioned within the losses, and dried under light weight. The fills are clearly visible under examination with ultraviolet radiation.

Thanks to the artist’s expressive use of line, color, and texture, this particular screenprint had an inherently forgiving surface for camouflaging fills. Compensation for losses within a flat field of solid color would certainly be more challenging, but with further refinement, this technique holds promise. Experimentation will continue, beginning with additional trials designed to exploit the versatility of ArtCare’s B72 Retouching Gels.

NOTE

VICTORIA BINDER

AUTOMATIC CONTACT SHEETS FOR PRINTING DIGITAL FILLS

Digital fills are a great technique to have on hand for compensation of losses in works of art on paper. With digital fills you can achieve a very accurate representation of the loss area that is still distinguishable from the original object. With some basic Photoshop skills almost anyone can do a decent digital fill in a relatively short amount of time. However, the problem that most people encounter is achieving a print of the fill that is accurate in color. No matter how well your printer and

Fig. 5. Steps to create a screened fill. From left to right: mini-screen and squeegee; screened and partially toned fill material stretched on a glass plate; completed fill.

Fig. 6. Before and after treatment details of the screenprint.

Fig. 7. Comparing a photograph with loss against a contact sheet generated with a digital fill, showing variations in color midtones.
When compensating for large areas of loss, the extent to which the design is reintegrated should be carefully considered. During my specialization project carried out at SUNY Buffalo State, I investigated experimental loss compensation techniques for an impression of the engraving *Knight, Death and the Devil* by Albrecht Dürer. The impression suffered a large area of loss in the lower left corner. Dürer’s engravings are composed of areas of such intricate and dense line work that conventional filling and inpainting techniques were not sufficient for the degree of loss suffered. Unlike drawings and paintings, prints are created in multiples and details of lost areas can be obtained by referencing other existing impressions. High-resolution images of other impressions of *Knight, Death and the Devil* were captured in preparation for this project.

Digital printing and experimental intaglio printing techniques were carried out to determine if intaglio printed fills could produce a more visually pleasing fill, potentially as a result of the topography of the printing ink on the surface of the paper after printing. Intaglio printing methods required both the formation of the printing matrix and subsequent printing to create the fill. The formation of intaglio printing matrices was carried out in multiple ways, including laser engraving, CNC milling, photopolymer plate exposure, traditional zinc etching, toner transfer etching, among other techniques.

Both inkjet and laser-jet digital printing proved to be the most effective and efficient filling techniques. Although intaglio printed fills have the advantage of using traditional media and provide a similarity to the original printing technique, these intaglio methods were not as successful in their final appearance, required additional equipment and skills, and were very time consuming to produce.

After fills were created, a removable puzzle fill technique developed by Judith Walsh was implemented to allow for complete reversibility and interchangeability of the fill. Puzzle pieces that accommodated the size of the loss were cut from archival mat board, and the print was properly aligned and hinged to the mat board that contained this negative puzzle shape (fig. 8). To prepare the fills, the mat board puzzle pieces were brushed on the top surface with wheat starch paste and quickly placed into the negative puzzle shape in the mat board. The digitally printed fill was aligned with the print and pressed onto the wheat starch paste with fingertips. The fill was quickly removed and weighted separately to dry. This allowed for perfect alignment of the fill.

The puzzle fill technique is a good solution for an artwork with large areas of loss. Inpainting can be carried out to the desired extent and can be removed at any time because it is not adhered directly to the artwork. A fill paper toned to the color of the surrounding sheet can also be inserted to allow the area of loss to appear more prominently. This provides the conservator flexibility to remain invisible during treatment with the option of highlighting larger areas of loss when appropriate.

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NANCY ASH
Charles K. Williams, II, Senior Conservator of Works of Art on Paper
Philadelphia Museum of Art
Philadelphia, PA
nash@philamuseum.org

SCOTT HOMOLKA
Associate Conservator of Works of Art on Paper
Philadelphia Museum of Art
Philadelphia, PA
shomolka@philamuseum.org

DEBRA EVANS
Head of Paper Conservation
Fine Arts Museum of San Francisco
San Francisco, CA
devans@famsf.org

BECCA POLLAK
Graduate Intern in Paper Conservation
Philadelphia Museum of Art
rebecca.pollak@philamuseum.org

AMY HUGHES
Andrew W. Mellon Conservation Fellow
The Metropolitan Museum of Art
aeshughes@gmail.com

VICTORIA BINDER
Associate Paper Conservator
Fine Arts Museums of San Francisco
vbinder@famsf.org

CHRISTINA TAYLOR
Graduate Student in the class of 2015 SUNY
Buffalo State Art Conservation Program
crystal16@gmail.com