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Author(s): Jessica Keister  
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# Acrylic-Toned Inserts and Overlays

Jessica Keister

*Presented at the 2015 PMG Winter Meeting in Cambridge, Massachusetts.*

## Abstract

It is a truth universally acknowledged that creating sympathetic inserts for photographs can be a challenge. This is especially true at a regional conservation laboratory, where a conservator may be limited by a client's financial commitment as well as external deadlines. Facing these challenges, photograph conservators at the Conservation Center for Art & Historic Artifacts (CCAHA) in Philadelphia have adapted established techniques of creating acrylic-toned paper inserts and overlays to meet the need for high-quality conservation treatment with minimal expense and time commitment. This paper will present several case studies detailing some of the innovative techniques used by conservators at CCAHA for a wide variety of photographic processes, including crayon portraits, silver gelatin prints, and dye diffusion prints.

## 1. Case Study: Glossy Silver Gelatin Photographs

### 1.1 Background

A collection of glossy silver gelatin photographs required toned inserts. This project was in preparation for exhibition and, due to the time constraints involved in exhibition preparation, the entire treatment could take no more than two weeks, most of which would be taken up by flattening after overall humidification. The fills needed to meet a number of requirements: they had to be glossy and opaque, and the right color and thickness. Also, these photographs would be displayed without mats, flat in vitrines. Nothing could be hidden beneath a window mat.

### 1.2 Insert Fabrication

It was decided to modify the standard method of creating a glossy fill by incorporating an inner layer of design created with colored pencils (fig. 1). Using colored pencils is faster and easier than using acrylic paints, where mixing colors to compensate for the change in color as the paint dries is time consuming.

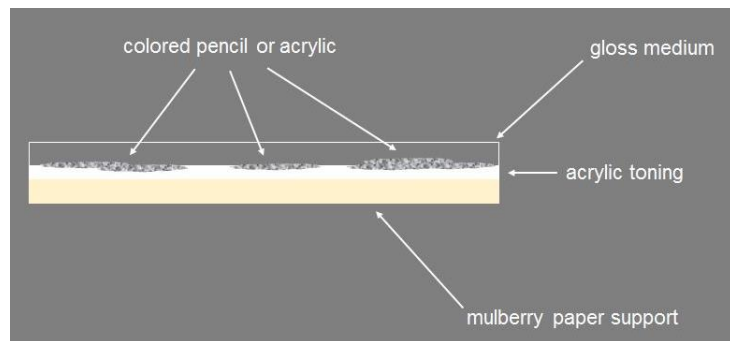


Fig. 1. A mulberry paper base is toned with a heavy layer of acrylic paint, colored pencil is applied to create the image tone, and then a final layer of acrylic gloss medium (which is dried in contact with silicone release Mylar).

### 1.3 Results

The colored pencil interlayer was quite effective, unifying the image and focusing the viewer's eye away from the damages, and worked especially well in compensating for losses in textured areas (fig. 2).



Fig. 2. Before treatment (*left*) and after treatment (*right*)

## 2. Case Study: Dye Diffusion Print

### 2.1 Background

A large work consisting of eight separately-framed 20 x 24" Polaroid color, peel-apart prints arrived at the Conservation Center in preparation for exhibition. The piece had several issues relating to a prior inappropriate hinging method, but the primary reason it was sent for conservation treatment was because the curator had an issue with a small, yellow processing flaw at the bottom center of one of the panels (fig. 3).

Standard methods of overpainting were proposed and attempted to reduce the appearance of the processing flaw, though none were successful. They were too bulky and actually more distracting to the viewer. The overpainting needed to be not only the right color and surface gloss, it also needed to be very thin. A new approach was required.



Fig. 3. Detail of yellow processing flaw, before treatment

At this point in the treatment, time limitations also came into play. A finite amount of time had been designated for overpainting, and a significant portion of it had been used attempting to make traditional techniques work.

## 2.2 Overlay Fabrication

After consideration, it was thought that an overlay had potential. In order for an overlay to be successful, it would have to be very thin, glossy, and appropriately-colored. With these requirements in mind a thin film of acrylic paint would be cast against silicone release Mylar: the acrylic film would be used as the overlay material. The slight tackiness of the acrylic itself would be enough to hold the overlay properly in place. Tests were conducted using 4.25 x 3.25 peel-apart Polaroids from the personal study collections of CCAHA photograph conservators.

The surface tension of the fluid acrylics made preparing the acrylic film more difficult than anticipated. Various additives – surfactants, ethanol, additional water – were incorporated into the acrylic paints in order to get them to flow more evenly easily onto the silicone release Mylar, though none were effective in reducing the surface tension of the acrylics. Despite this slight working difficulty, the overlay technique was deemed a success.

## 2.3 Result

After the tests proved that the idea was feasible, a suitable acrylic film was prepared and the overlay was cut and laid into place.

The object was then put upright on an easel and the effectiveness of the overlay was assessed by a number of CCAHA conservators before deciding, as a group, that the effect was acceptable. The color match is appropriate, and the overlay itself is thin, opaque, and glossy, and hides the yellow irregularity. From all but the most extreme angles and ridiculously close viewing distances, the overlay is invisible, and the viewer's eye simply slides right over it (fig. 4).

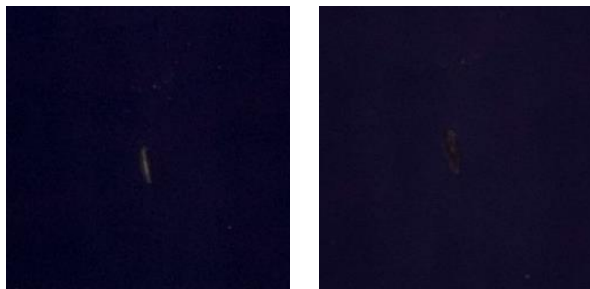


Fig. 4. Detail, before treatment (*left*) and after treatment (*right*)

While the transition between the overlay and the print's surface is not as smooth as it could ideally be, it is important to remember that better is often the enemy of good. The acrylic film was more flexible and stretchy than anticipated, even after mock-ups, which made cutting the appropriate shape slightly challenging. Refining this technique would be an excellent avenue for further experimentation. Due to the time constraints of the project, it was not pursued beyond the successful creation and application of the overlay to this object.

While the long-term suitability of an entirely acrylic overlay is unknown, the test overlay remained in place on the study collection Polaroid for over two years and could still be removed with ease, exhibiting no increase in tackiness.

### 3. Case Study: Crayon Portrait

#### 3.1 Background

This crayon portrait had many issues, both structural and aesthetic (fig. 5). The client wanted to reuse the original frame and maintain the original style of presentation, using spacers and not a window mat. As a consequence, practically all of the dark staining present in the upper one-third of the object had to be significantly reduced.

The treatment proceeded uneventfully as proposed. The dark staining was reduced to the extent possible during suction table washing, using alkaline water and controlled applications of a 0.1% sodium borohydride bleach. After the effects of the local aqueous treatment plateaued it was decided that the appearance of staining would be reduced using pastels. This worked to a limited degree: the vast expanse of remaining stain still proved a challenge, and despite the extensive collection pastels available for use at CCAHA it was not possible to counteract the bluing that occurred when the pastels were applied in areas of staining.

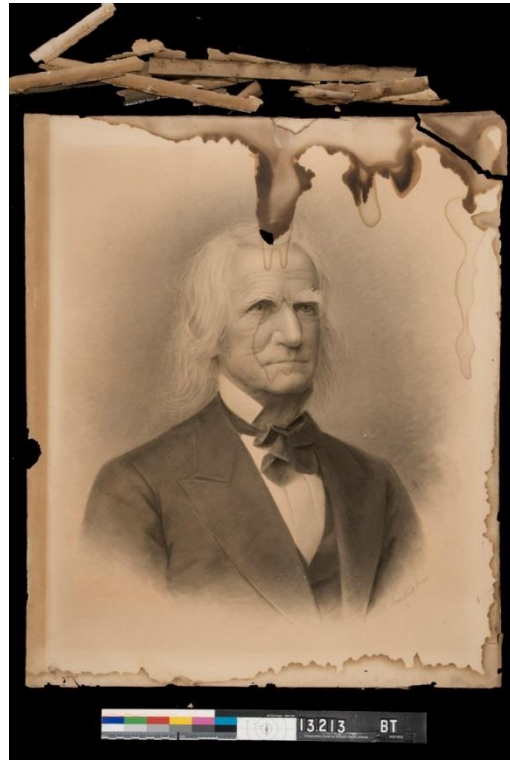


Fig. 5. Before treatment

It was decided that a toned mulberry paper overlay executed in conjunction with further retouching could be effective. Though there was some airbrushed vignetting in the background that would be covered by an overlay, the tradeoff between reducing the appearance of the stain and obscuring a minor amount of the background was deemed acceptable.

#### 3.2 Overlay Fabrication

A two-layer overlay would be created, the components of which would function in the same ways that overpainting does to hide a dark disfiguring spot. The same primary colors would also be used in creating the double overlay: chrome orange and titanium dioxide.

With a traditional one-layer overlay a slightly bluish overall tonality will result because of wavelength-dependent Mie's scattering. When a translucent light material is applied over a dark substrate like a stained piece of paper, the upper layer scatters the shorter (blue) wavelengths less than the longer (red) ones, allowing them to penetrate further into the surface of the object. If the deeper layers are dark, they will be absorbed, and not reflected, resulting in an overall bluish appearance. It is a subtle effect, but enough to make for problematic overpainting. Incorporating

a thin, light orange inner overlay is enough to counteract the slight blue tonality of the single-layer overlay.

As illustrated in Figure 6, the inner overlay was a lightweight 7 gram machine-made tengugo paper. Papers lighter than 7 grams can be difficult to tone, especially in large pieces. The recto and verso of this paper were toned using titanium dioxide and chrome orange to a light peach color.

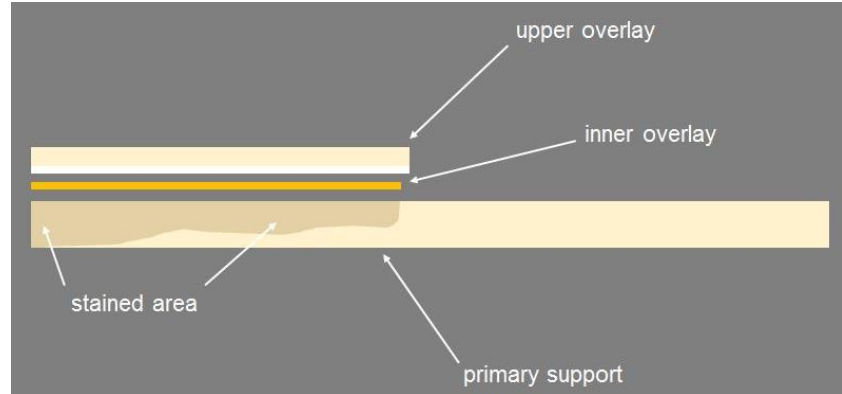


Fig. 6. Double-overlay structure

The outer overlay was a slightly heavier mulberry paper, around 19 grams, and was toned twice with acrylics. The verso (the rough side of the paper) was lightly toned with a few thin washes of dilute titanium dioxide in order to increase the opacity of the paper. The recto (the smooth side) was toned to match the overall paper color.

Again, as diagramed in the figure, the inner overlay was cut to extend a hair beyond the stained area. The outer overlay was then cut to extend slightly beyond the inner overlay to the unstained support, so that the visual transition from object to overlay would be smooth. The overlays were cut and not water-torn. Water tearing would have created uncontrollable irregularities within the careful toning and the smooth edge of a cut would be easier to transition to the surface of the print than a fibrous, dimensional edge.

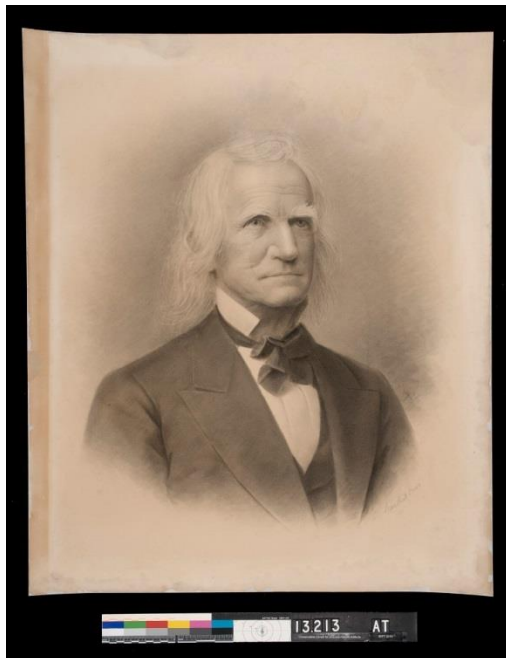


Fig. 8. After treatment

### 3.3 Results

The stained area of the crayon portrait was fairly extensive, and even though the process would be reversible, carrying out the entire overlay without knowing that it would be successful was too risky. A small test overlay was done at the upper right corner of the object, most of which would be hidden beneath the spacers and the frame rabbit. This initial test was successful, and the larger overlay was completed. The component layers were applied one at a time, and wheat starch paste was used as the adhesive. After drying some minor adjustments were made with pastels and further overpainting was done as planned with pigments and grated pastels.

**4. Summary**

While creating sympathetic inserts for photographs can a challenge, with careful planning, existing techniques can be adapted for more unusual or problematic situations. Careful judgment and familiarity with materials and processes is necessary for informed decision-making, and access to study collection materials is also an advantage. It is important to remember that each object is unique and that what is successful for one project may not be suitable for another.

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**Jessica Keister**

Photograph Conservator  
New York Public Library

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