

# A Mixed Media Approach to Printed Photographic Fills

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## INTRODUCTION

Digital photography is increasingly being used to create printed fills for loss compensation on a variety of materials that may otherwise be difficult to replicate. The creation and digital manipulation of the image are important steps, but it is the alteration of the image post-printing that can allow the fill to take on the appearance of materials very different from the paper on which it is printed. For this project, missing leather strap pieces for a 19th century militia knapsack and valise were created using this method.

The original straps were made of leather painted white on one side. Over time, the paint had developed a highly visible craquelure. The straps were restored as part of the overall conservation treatment of the knapsack and valise because they were no longer functional with nearly half of their total length missing. All that remained were two pieces measuring about 9.5 and 3.5 inches in length. About 20 inches of strap needed to be reproduced in order to make the straps appear functional for exhibition.



Knapsack and valise (with shoulder straps) before treatment.



Knapsack and valise (BHM #64.402) after treatment.

## 1) Photography

- The painted side of the strap was photographed with even diffuse lighting adjusted to eliminate surface reflections (fig. 1).
- Based on the camera and lighting conditions used, a DNG camera profile was created using X-Rite ColorChecker Passport.
- The computer monitor and printer were profiled using an X-Rite i1 spectrophotometer in order to ensure consistent color display and output.



Fig. 1: Original strap piece was photographed.

## 2) Digital Editing using Adobe Photoshop

- The DNG camera profile was applied to the image to provide an accurate color foundation for editing.
- The image was resized to correspond with the actual size of the strap.
- The image was sharpened to ensure a crisp realistic printed image.
- The exposure, contrast, and hue were adjusted to estimate the appearance of the original piece.
- A test page containing several copies of the image adjusted to varying degrees was printed in order to compare the printed appearance with the original material (fig. 2).
- Once the best match was determined, this image was copied, pasted, and blended digitally to create longer strap images with no visible seams. During this merging process, duplicate images were rotated and/or overlapped to create a random pattern with no obvious repetitions.



Fig. 2: Printed test page with adjusted images.

## 3) Printing and Post-printing Alterations

- The final images were printed with archival-quality ink on heavyweight matte paper.
- The printed images were thinned by removing the bulk of the paper substrate using a sharpened microspatula (fig. 3).

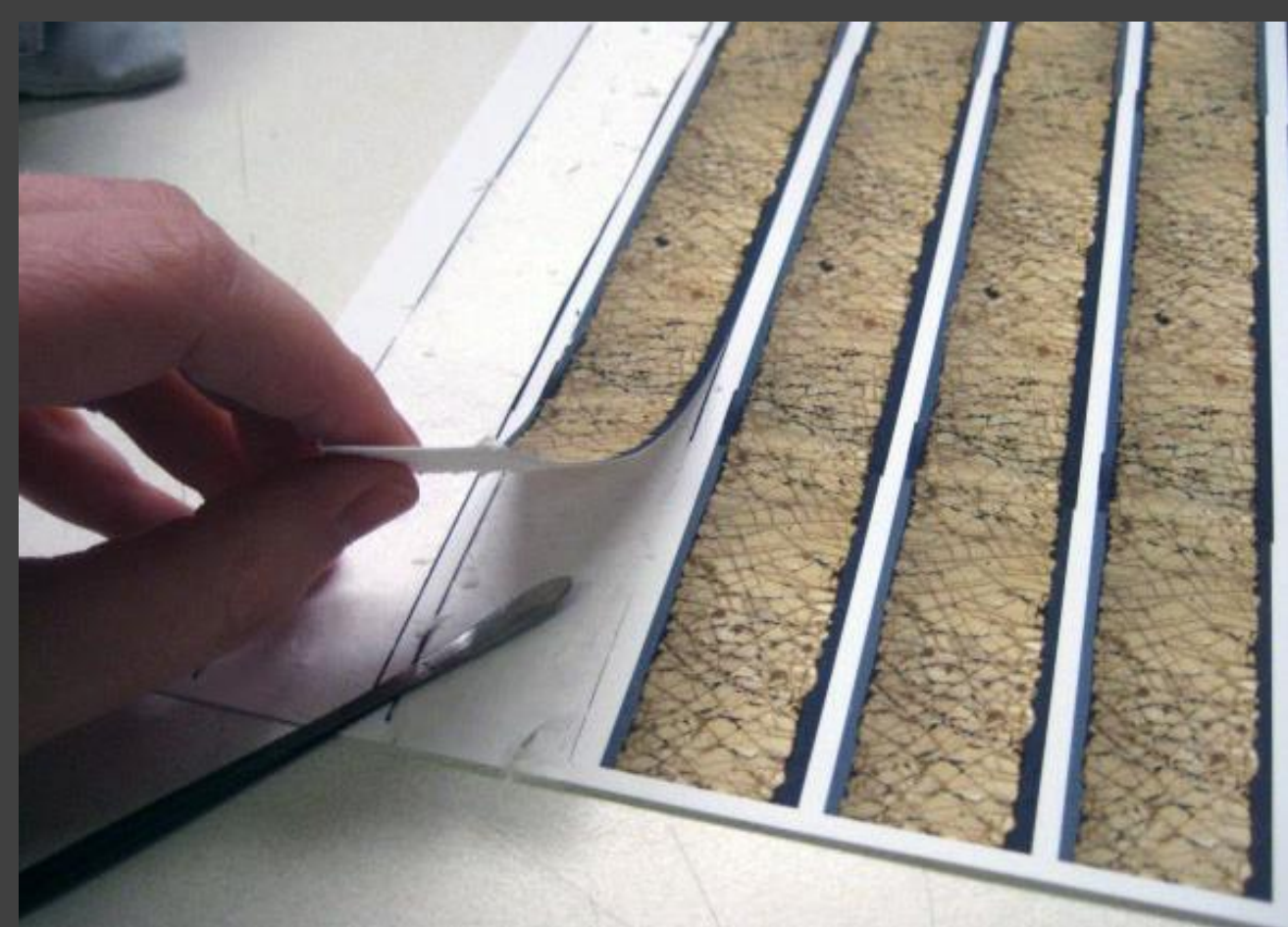


Fig. 3: The chosen final image was printed and the printing paper substrate thinned.

- The thinned images were backed with four layers of Tyvek, all laminated together with heat-set Beva film (fig. 4). This Tyvek backing matched the thickness and flexibility of the leather straps.
- The mounted image strips were trimmed to follow the natural edge of the strap.



Fig. 4: Thinned printed image adhered to Tyvek backing.

- The sides and back of the strips were toned with acrylic emulsion paints. When painted, the slight texture of the Tyvek accurately resembled the appearance of the leather (fig. 5).
- Clear acrylic emulsion gloss varnish was locally applied to the printed image between the cracks to create a surface that mimicked the slightly quilted texture and sheen of the original cracked white paint (fig. 6).



Fig. 5: The front and back of the toned printed fill.



Fig. 6: Texture and sheen of the applied varnish.

## 4) Attachment

- The strap replacements were adhered to the original straps with a backing bridge of heat-set, non-woven polyester fabric that had been flock-sprayed with Beva.

- The seams between the replicated and the original straps were filled with Beva bulked with microballoons applied with a heat spatula and toned with acrylic emulsion paints (fig. 7).



Fig. 7: Printed fill (left side) adhered to the original strap piece (right side); the seam is filled but not yet toned.

## RESULTS AND CONCLUSION

The printed photographic fills proved successful in replicating the appearance of the cracked, painted leather. The addition of the Tyvek backing, paint, and varnish enhanced the effectiveness of the printed image. With the intact straps in place, the knapsack and valise

can now be displayed together as they would have been worn. This project is one example of how the combination of digital editing and post-printing manipulation by hand can be used to transform a printed image into a convincing fill for loss compensation. The technique may

be adapted to reproduce a variety of other materials. Ideas for future work include printing on different types of paper, using other backing materials, and experimenting with various media to alter the printed image in order to achieve different effects.

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