

Maximizing Efficiency: The Use of Inkjet Copiers to Transcribe Historical Inscriptions

Andrea Youngfert* and Brenda Bernier**
Weissman Preservation Center, Harvard University Library

INTRODUCTION

Preserving information contained in historical inscriptions is a constant need in archival practice permeating the boundaries of academic, governmental, and scientific institutions. Often many hours and dollars are spent having staff manually copy historical inscriptions from their original enclosures onto new archival storage materials. And commonly, necessary rehousing projects are indefinitely postponed due to labor cost or fear of transcription error, particularly in cases dealing with technical inscriptions, those that are partially illegible, or inscriptions in a foreign language. By utilizing an inkjet copier, transcription error is eliminated. The overall costs are also greatly reduced, making seemingly impossible projects suddenly much more feasible.



Epson Stylus CX6000 3-in-1 Inkjet System

PILOT PROJECT

In a trial project at Harvard University Library, a 3-in-1 inkjet copier was implemented, specifically the Epson Stylus CX6000, to efficiently copy 1,700 historical inscriptions from original negative enclosures onto archival storage envelopes. The 3-in-1 inkjet copier system is commonly used in household printing when connected to a personal computer, but by using the inkjet copier independently, without a computer component, a more user-friendly machine is adapted for streamlined institutional use.

The 1,700 negative enclosures that were rehousing in this pilot project are a collection from the Fine Arts Library of Harvard University. The collection contains images of various important artworks from around the world. The negatives were previously housed in acidic enclosures, all of which were yellowed and brittle. Each enclosure had important art historical information written on it, including the artist's name, title of work, date, and/or institution where it was displayed.

Most enclosure writing was legible, but others were more difficult to decipher. Usually in rehousing projects such as this, the inscriptions would be copied to the best of the person's ability, with the hope that little transcription error would occur. By implementing the 3-in-1 copier to physically copy the original enclosure, transcription error is eliminated while also allowing for the preservation of original handwriting and penmanship which in some cases can give additional information.

METHODS AND MATERIALS

The original negative envelope was placed on the scanning bed of the 3-in-1 system, face down and in the correct orientation.



The "Draft" setting was used to minimize ink use, and the 4 x 5 setting was chosen as the new envelope size on the 3-in-1 system. The new archival enclosure was placed in the feeder.



The "Copy" button was pressed, and the original enclosures' information was copied onto the new archival envelope, yielding the correct orientation and size. This can be done in either "Color" or "Black and White" depending on the settings chosen.



PERMANENCE OF PIGMENT BASED INK

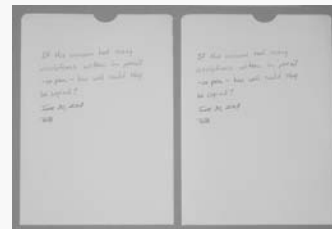
Henry Wilhelm has conducted extensive preliminary research on the permanence of various printers and printing inks. His results for the Epson Stylus CX6000 and the Epson DURABrite Ultra pigmented inks can be found in full on his website at, www.wilhelm-research.com.

Based on Wilhelm's print permanence ratings, the Epson Stylus CX6000 was chosen for this pilot project and no further comparisons of other 3-in-1 systems were conducted. While other 3-in-1 systems could work equally well for such a project, the CX6000 was chosen because of its relatively low cost, usage of pigment based inks, and print permanence ratings assigned by Wilhelm.

Some of his findings of the printer and ink system that were promising for this application were the light stability, resistance to high humidity, and color balance ratings. Since the original enclosures can be printed in both color and black and white, it is important that the color balance also be stable.



original color copy black and white copy



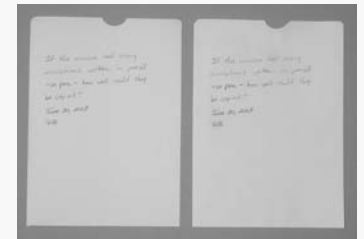
original copy

RESULTS AND RESOURCES SAVED

The Epson Stylus CX6000 can print on various sized enclosures, ranging from 4x5 to 8x10, and even 4-flaps. The 3-in-1 machine retails for approximately \$100, with the pigment-based inks costing another \$125. Working with 1,700 enclosures during the pilot project, roughly 7 cents was spent per enclosure on ink, while simultaneously saving approximately 20 hours of labor.

DRAWBACKS AND ENHANCEMENTS

While using this system does save time and resources, there are some drawbacks. Pigment ink can be somewhat water soluble, therefore we tested the water solubility of this ink system before putting it to use in this application. In our tests, inks did not bleed through the enclosure so it would not be likely to transfer to the negatives in a real water event. While there was some minor bleeding, the inscriptions were still completely legible after submerging in water and then allowing to dry, as seen below.

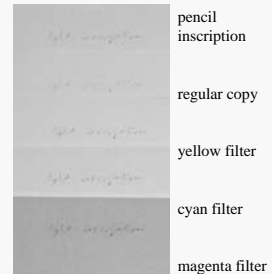


original copy water damaged copy

In addition, when experimenting with the copying of very light pencil inscriptions, there is no way to manually adjust the density on the CX6000 3-in-1 system itself. Density manipulation was achieved through colored filters (available from stage lighting suppliers) which were used between the original and the glass directly on the scanning bed. This offered the manipulation sometimes necessary to achieve a successful copy. Yet, while the original inscription was darkened by the colored filters, so too was the background of each enclosure, causing a darker background tone to be copied overall.



magenta filter being used to improve copy quality of a light inscription



pencil inscription
regular copy
yellow filter
cyan filter
magenta filter

ACKNOWLEDGEMENTS

Many thanks to Robert Burton, Photograph Cataloger, for his encouragement and editing, the staff of the Fine Arts Library at Harvard University, and Harvard University Library.

*Andrea Youngfert, Conservation Technician for Photographic Materials
**Brenda Bernier, Paul M. and Harriet L. Weissman Senior Photograph Conservator