TECH TALK
This issue: Photographs • Part II

MINNESOTA HISTORICAL SOCIETY

In this issue, Bonnie Wilson, curator of sound and visual collections at the Minnesota Historical Society (MHS), discusses working with photographic prints, and Eric Morenson, supervisor of the MHS photo lab, discusses the pros and cons of digitizing photographs for preservation.

Care of Photographic Materials: Prints
by Bonnie Wilson

Basic care of prints

Photographic prints are somewhat easier to care for than photographic negatives. For instance, if the print has a good negative in the archives, a replacement print can be made if something harms the original photograph. However, there is no true substitute for a vintage print, a print made at the time the photograph was taken. Vintage prints are historical artifacts, and must be treated with the same care taken with original negatives.

Photographic prints of any kind should be stored separately from negatives. The negatives may emit harmful chemicals, or the researcher handling the prints may inadvertently damage negatives while perusing the collection. If negatives and prints are stored together as a temporary measure, make sure the researcher uses white gloves to examine the collection.

Prints that are in poor condition or are likely to be handled frequently should be protected with polyester sleeves. If the photo or its mount is torn, support it with a PAT-tested, unbuffered (2-ply) board before it is inserted into the sleeve. (PAT stands for "Photo Activity Test," a procedure devised by the American National Standards Institute (ANSI) for assuring that material is of archival quality.) For large unmounted fragile items, "handling folders" (see illustration below) can be purchased or made. These are composed of acid-free 4-ply board mounted on two sides to polyester sheets.

The most useful and basic storage units are the acid-free unbuffered file folder and the "flip-top" box (see illustration). Both items are available from the archival supply companies in the list of resources. When storing photos on edge in boxes, make sure they are supported with PAT-tested boards so that there is not any excess space that would cause the photos to slump into a curve. Most historical photos are roughly 8" x 10" or smaller, so the majority of your research requests will use this portion of your collection.

Vertical folders in boxes are easy to transport and use. Flat horizontal storage is useful for larger photos. When storing photos flat in boxes, lay no more than 20 in a stack. The photos on the bottom could be damaged by too much weight, and access to the box contents is less convenient for the researcher.

MHS collections; photograph by Eric Morenson

Flip-top boxes like these are useful for storing photographs in folders and for storing film negatives. Glass plate negatives need sturdier boxes.

Albums

Some of the most interesting photographs come to us in albums. They should be respected as individual works by a compiler, much as a diary is the work of an individual writer. Just as we would never

Editor's note: TECH TALK is a bimonthly column offering technical assistance on management, preservation, and conservation matters that affect historical societies and museums of all sizes and interests. We welcome comments and suggestions for future topics.

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think of pulling apart the pages of a diary, we should not dismantle albums. They were made according to some design, chronological order, or story line. They can best be cared for by placing them in acid-free boxes, or making a PAT-tested wrapper for them. If you have reason to believe that the ink, paper or images on one page are contaminating the photos on the opposite page, use unbuffered PAT-tested tissue between endangered pages. The interleaving can cause the album to become too thick, so use it sparingly.

MHS collections; photograph by Eric Mortenson

Handling folders provide a safe viewing and storage environment for large photos. The polyester sheet is secured on the left and bottom edges. No adhesive is used to hold the photo in place.

There is one type of album that must be taken apart and reassembled into another album: the "magnetic" or self-adhesive album. These albums destroy their contents, so extraordinary measures are necessary. Purchase an archival scrapbook and photo corners as a replacement. Before you dismantle it, photocopy the pages of the magnetic album to record any captions and the original order. Transfer the now-sticky photos immediately into the new scrapbook.

Framed Photos

Framed photos are easy to display and difficult to store. Each frame, mat, glass and backing creates a microenvironment for the photo. It can preserve the photo or cause a disaster. Whenever possible, unframe the photo and store it like the others. If its frame evokes the vintage of the photo and is in good shape, you may want to keep it for future display. Mark the frame with the number or location of the photo and store it separately.

If the photo must stay in the frame, remove any old wooden backing boards and replace them with PAT-tested board, such as a good-quality 100 percent rag board. Clean and examine the glass for signs of deterioration. You may decide to replace it with new plain- or UV-filtered glass. Finally, make sure you install the photo with a barrier between the photo and the glass. If a window mat is appropriate, that is fine. Otherwise make a PAT-tested board barrier that is concealed between the photo and the glass under the frame. Do not store photos in frames that hold the photo against the glass because moisture will cause them to bond together, creating a conservation disaster.

Conclusion

The essence of photo care can be stated simply: To extend the life of your collection into the next generation, provide good environmental conditions and good storage materials. In addition, get acquainted with the materials that comprise your photos, negatives and storage materials, not just the content of the images. That will help you understand their vulnerabilities and predict their longevity.

Recommended reading

Keefe, Laurence E., Jr., and Dennis Inch. *The Life of a Photograph.* Boston: Focal Press, 1990.

Reilly, James M. *Care and Identification of 19th-Century Photographic Prints.* Rochester, N.Y.: Eastman Kodak Co., 1986.

Ritzenthaler, Mary Lynn, Gerald J. Munoff, and Margery S. Long. *Administration of Photographic Collections.* Chicago: Society of American Archivists, 1984.

Wilhelm, Henry and Carol Brower. *The Permanence and Care of Color Photographs.* Grinnell, Iowa: Preservation Publishing Company, 1993.

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Digitizing Photographic Images as a Preservation Tool

by Eric Mortenson

Inexpensive scanners and computer workstations are now in use at most small libraries and historical societies, and staff and patrons are attracted by the capabilities of digitization of photographs. In this article I will discuss digitization as a preservation tool.

First, a general comment: Scanning photographic images for the purpose of preservation needs to be considered in relation to the goals and objectives of the individual's or institution's collection. The labor and costs involved in creating an electronic collection can often be better spent on re-housing and cataloging images you already have. In other words, do not be lured into false expectations about creating an accessible collection. We may assume that once the computer file is created there will be less handling of the original, but the reality is more often an increased demand for the original.

MHS collections; photograph by Norton & Peel

MHS collections; photograph by Norton & Peel

Above: This print was made from a 4" x 5" negative of an 8" x 10" black and white print, scanned at 200 dpi.

Right: This is a digitized image from a 35 mm slide, scanned at 200 dpi.

Far right: A blowup made from a 4" x 5" negative of the top photo, scanned here at 200 dpi

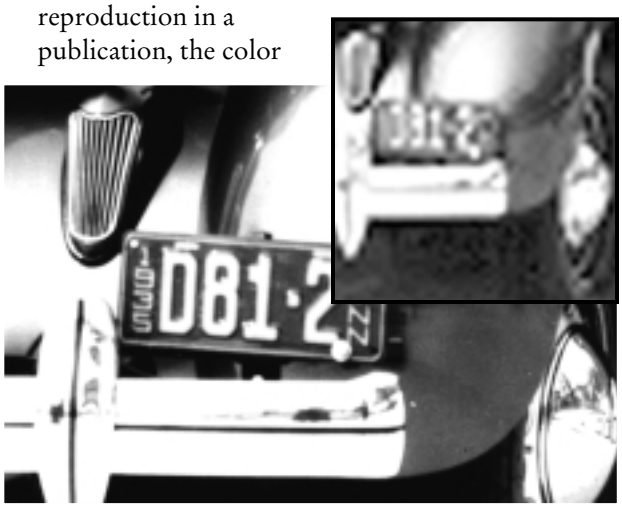
Insert: a blowup from the digitized slide image., also scanned at 200 dpi.

Next, caution is in order. Scanning an 8" x 10" image can require a considerable amount of computer storage space. For example, the top picture above, scanned at 200 dpi (dots, or pixels, per inch) creates a file of just under 1 megabyte (MB); at 300 dpi—2.2 MB; at 600 dpi—8.6 MB; at 800 dpi—15.4 MB; etc. If you should upgrade your computer and scanning equipment, you will also need new software for "migrating" the digital files to the newer mediums, for reading them, and for transferring files to different stations on a network. This is because at this time, downloading a file is limited to the capability of the current computer system for viewing (i.e., the maximum resolution of a computer screen is 72 dpi) and for file transfer over a network.

Perhaps the most important consideration is that the resolution or information within, for example, a 300 dpi, 24.5 MB file of an 8" x 10" print is approximately one-tenth of the information that is in the original image. Admittedly, the definition of "information captured"used here may become outmoded at some future date, but in the meantime, anyone considering digitization will have to be willing to accept the loss of possibly valuable information and/or detail contained within an image.

For example, in a photo album of landscapes, automobiles and buildings, there were no indications of the date on which the photographs were made. Upon closer examination of the license plate of the car in the photograph to the left, we saw the yearly license tab that enabled us to date the image to the year rather than to the era. Even in the highest quality digitized image, this information would have been lost. (See the photograph and insert below.)

In practice, after a researcher has chosen an image for use, he or she has to find out which kind of file transfer or hard copy output will be needed. For most purposes the digital image is adequate for research, for it is comparable to a high quality photocopy. But for reproduction in a publication, the color



MHS collections; photographs by Norton & Peel

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and resolution is far greater when a 35mm color slide is made from the original image. (It is also worth pointing out that, while handling several digitized images in files of this size, e.g. 15.4 MB, is possible, the computer storage ramifications of dealing with 1,000 to 10,000 digital images could be very costly.)

Duplicating 35mm slides is becoming a more efficient option with the accelerated rate of scanner improvements and the push towards chemical-free image-setting technologies. The 35mm color slide can still be re-scanned and the copy, rather than the original, used to meet current demands. By relying on the higher-quality 35mm slide rather than the high-resolution file, the original image does not need to be rescanned whenever hardware is upgraded, nor does one have to be concerned with using electronic formats that may become obsolete in a few years.

Access

Databases need cross-referenced information to be useful. Because of the way a database functions, information that cannot be cross-referenced will not allow for a complete search or query. Before a database can be designed or developed, the collection must be cataloged and indexed. Unfortunately, off-the-shelf databases that are designed to handle the complexities of historical collections are not yet available. Since the selling point in promoting the idea of digitizing collections is being able to search your collection electronically, it seems to me that at this time, resources would be better used if focused on the priorities of preserving the original.

During the cataloging process, many things can be done simultaneously. A 35mm slide can be made and the original can be re-housed. The added step of scanning a slide at this time would be much more efficient in this format. The labor and equipment costs to deal with just one format, rather than originals of various formats, will easily outweigh the cost of creating the slide. Use of the 35mm slide will provide a consistent format for digitization and access. Therefore, when the researcher's final choice is made, the color slide could easily be duplicated or loaned for reproduction. Ideally, any photo reproduction should be made in a 4" x5" format, but for comparison and practicality the 35mm slide is most useful.

Reproducing Original Images

To create quality reproductions of originals, you will probably need an experienced and qualified photographer. There are a few criteria to keep in mind when choosing a photographer.

- Will the photographer provide examples or references for the same type of work?
- Does the photographer's format work for your collection?
- Will the photographer turn over all films produced from the project?
- Is the photographer aware of the fragile nature of collection materials?
- Can the photographer produce color-matching film (i.e., color-corrected slides)?
- Will the photographer work on location or from his or her own facilities?

Before hiring a photographer, consider also whether a specific film format is important for your purposes. For example: Does it matter if the copies are in a 35mm slide format, or do you need 4" x 5" negatives and transparencies? The standard format at MHS is a 4" x 5" black-and-white copy negative and an 8" x 10" black-and-white file print. For works of art we make color slides and 4" x 5" transparencies.

The capabilities and experience of the individual are not as important as his or her interest in producing a technically accurate reproduction of the original item. Often you can find an individual who may not be employed professionally as a photographer, but who has the necessary skills and attitude for photographic copy work. One place to start is with your local newspaper or portrait studios. These photographers will have access to studio and dark-room facilities, but they may charge more for their services. You may also want to consider purchasing the equipment and training your own employee to do this work.

Recommended Readings

"Can Your Images Stand the Test of Time?" John Stewart. *Imaging Magazine,* May 1998

"Resolution ABCs", *PC Photo*, March/April 1998, Vol. 2, No. 2.

"The Right Chemistry," *Digital Imaging*, September/October, 1995. (Discusses the pace of advances in digital imaging.)

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