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# Chicago Albumen Works

2008



*Digital and Traditional Preservation Services  
for Photograph Collections*

*[www.albumenworks.com](http://www.albumenworks.com)*

## Chicago Albumen Works

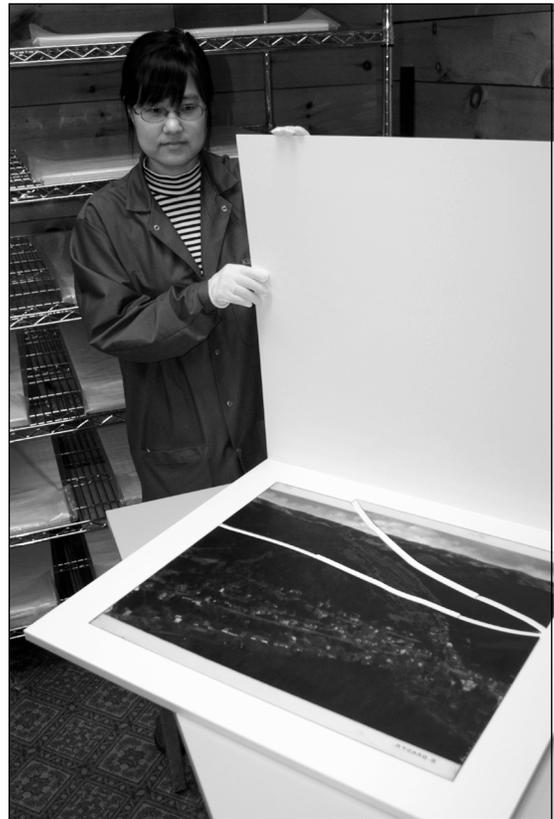
Since 1976 the Chicago Albumen Works has focused exclusively on developing a wide range of services and products to assist the country's leading museums, institutions, and private collections with the execution of their photograph preservation programs.

Located in a restored textile mill along the Housatonic River in western Massachusetts, CAW puts decades of experience to work for some of the finest collections from around the world. A combination of technical expertise and historical perspective, operating in a controlled, conservation environment, directs our solutions to the diverse challenges presented by photograph collections.

The staff at CAW brings a wide range of training and experience to the task of photograph conservation. Its size is large enough to accommodate professional diversity, and at the same time small enough to encourage the sharing of expertise and ideas. Across the staff, we possess advanced degrees or certificates in photograph conservation, fine art photography, art (photographic) history, and digital photography, plus years of accumulated experience in the photographic laboratory.

At CAW, the synergy of technical understanding, a conservator's approach, an artist's eye and a historian's perspective creates a unique, productive, and collegial environment.

The CAW digital laboratory is not a one-way street heading away from traditional media, for we constantly ask, "Will this file be sufficient to produce a surrogate of the original?" The production of surrogates, in both digital and traditional media, is an important service that can provide institutions with the ability to display objects that may be too fragile for exhibition or to allow display in venues with less than optimal security.



### Recent Projects:

**CITY OF DEADWOOD, SOUTH DAKOTA:** Provide preservation housing for 14 broken original, large format, hand-colored glass plate transparencies, exhibited at the 1904 St. Louis World's Fair. Create 2 surrogate copies of the plates via digital capture and output, including creating 7x9' frame with LED light source. Install exhibit in Deadwood City Hall.

# Chicago Albumen Works

## Digital Services

### Capture

- High Resolution, Archive Scanning
- High Resolution Optical Image Capture

### Output

- Digital File to Archival Film for Preservation and Access (LVT)
- Duplicate Negatives and Copy Negatives from Digital Files
- Restored Color Transparencies
- Archival Ink Jet Prints
- Multiple File Delivery Options:  
CD, DVD, Hard Drive, FTP transfer.

## Acetate Deterioration

- Recovery of Deteriorated Negatives
- Recovery of Deteriorated Microfilm

## Traditional Duplicating & Printing Services

### Preservation

- Archival Duplication (Film)
- Fabrication of Custom Enclosures

### Printing

- Vintage Media Prints
- Contemporary Media Prints
- Sales of Centennial™ Printing-Out Paper

## Collection Services

- Collection Surveys
- Imagebase/Database Development
- Disaster Recovery

## CAW Digitizes:

- Film negatives
- Glass plate negatives
- Lantern slides
- Color transparencies
- B/W and color prints
- Autochrome plates
- Aerial photographs

In addition, two-dimensional media such as:

- Photograph Albums
- Drawings and lithographs
- Books and scrapbooks
- Maps
- Posters
- Textual documents

Our digital laboratory adheres to the following guidelines:

Projects are structured to meet or exceed the U.S. National Archives and Records Administration's Technical Guidelines for *Digitizing Archival Materials for Electronic Access: Creation of Production Master Files – Raster Images*.

All scanners, cameras, monitors, and printers are calibrated and ICC compliant.

All LVT film output is subject to the same quality control as outlined in the U.S. National Archives and Records Administration's *Technical Requirements For The Duplication of B&W Negatives: Shadow Normalization Tone Reproduction*.

The portability of our 39 megapixel digital back camera allows for on-site digitizing, with the production of large, museum quality files.

Our FTP server allows institutions to produce quality scans in-house and to transfer them to us for further work, such as making museum quality ink-jet prints, LVT film outputs, or even vintage media silver prints for exhibition.



## Digital Services

Digitization is an integral part of nearly every institution's preservation program. On-screen access and digital reference prints vastly reduce the need to retrieve original materials, allowing for far less handling and providing the opportunity to place original collections in true archival storage environments.

The Chicago Albumen Works provides digital services to meet the following needs:

- Archive master files prepared from scan or optical capture.
- Preparation of derivative files for reference, printing, database, and web use.
- Duplicate negatives from digital files via LVT film recorder.
- Copy negatives from digital files via LVT film recorder.
- Color restoration of faded color transparencies, output to digital media and/or duplicate transparency.
- Ink jet prints using Epson UltraChrome K3 archival inks on museum quality papers.

CAW has a wide variety of high-quality digital equipment: professional flatbed scanners by Creo/Kodak and Epson, film-dedicated Nikon scanners, and high-resolution Hasselblad H3D and Leaf Valeo digital back cameras. Applying professional experience and expertise during the digital capture results in high quality work delivered on an established schedule.

Vintage maps and drawings, broken glass plates, lantern slides, film negatives, historical and modern photographs and prints,

photographic albums and art works- nearly any flat object can be digitized, restored and reproduced as print, b&w or color film, or as electronic file.

Data files that include technical and object related metadata can accompany every set of image files, with file structures and file naming conventions designed to integrate smoothly with the client's own digital infrastructure.

CAW maintains an ICC compliant workspace through maintaining regular calibration of its digital equipment.

Digital imaging services can be found nearly everywhere, but it is the attention to detail and quality, as well as the ability to "read" the characteristics of an image, that proves essential to creating files of the highest quality. Just as in the past, when experience and dedication to vintage media printing informed and fine-tuned our negative duplication services, so now, in the arena of digitized images, our services are informed by a commitment to image quality, longevity, and a client's needs. Keeping the conservation aspect of these services in mind and working in a calibrated digital environment, every effort is made to assure that the resulting files contain accurate image data and that they are produced in accordance with the most current digitizing and metadata standards.

Digital services provided by CAW are carried out in a professional conservation environment by staff members trained to handle valuable original material.



### Recent Projects:

**THE NORMAN ROCKWELL MUSEUM/STUDIO COLLECTION:** Digitize 18,000 original b&w and color negatives and transparencies ranging in size from 35mm to 4x5." Delivered on Mitsui Gold Archival CD with metadata.

**DUKE UNIVERSITY/SIDNEY D. GAMBLE COLLECTION :** Digitize 5,000 original nitrate negatives ranging in size from 2.25" to 4x5." Deliver on hard drive with metadata. Create Excel spreadsheet via OCR of information on negative sleeves to provide a searchable database of the collection.

**CONNECTICUT STATE LIBRARY/1934 AERIAL SURVEY COLLECTION:** Digitize 8,500/8x10" prints. Output to copy negative on 8x10" archival film via LVT. Produce 8x10" fiber copy print for each. Deliver files on hard drive with metadata. Re-house original prints.

## Digital Services

### LVT Film Output

It cannot be emphasized enough that digitizing alone will not suffice for preservation. After digitizing, original materials must still be stored in true archival conditions, and the digital files themselves must be protected from obsolescence and corruption.

Additional protection can be secured through outputting digital files back to archivally processed silver film. This service is important to consider whenever originals are inaccessible or are at risk of spontaneous deterioration or if there is no original, such as in the case of “born digital” images. Human readable, archivally processed film offers the securest repository.

Digital-to-film archiving is not an idea confined to still camera images; corporations print digital documents to microfilm, and Hollywood preserves its digital assets by outputting them to traditional silver film.

LVT (Light Valve Technology) offers a unique option for the preservation of historical negative collections. The ability to output to continuous tone film with accurate tonal reproduction marries the capabilities of digital imaging to traditional silver halide technology. CAW has three LVT film recorders capable of outputting RGB files as large as 2GB. We can produce 8x10” films at resolutions up to 3048ppi and 16x20” films at resolutions up to 1524ppi. LVT film recorders can handle files eight to twelve times larger than the file size recommendations in the



### Recent Projects:

**MUSEUM OF THE CITY OF NEW YORK/LUCAS-MONROE THEATRE COLLECTION:** Digitize 500/8x10” acetate negatives. Output as duplicate negative on 4x5” archival film via LVT. Deliver files on hard drive with metadata. Re-house original negatives in archival enclosures.

**UNIVERSITY OF ILLINOIS/ CARL SANDBURG COLLECTION:** Received TIFF files of 4,200 original photographic prints and negatives. Output to copy negative and duplicate negative on 4x5” archival film via LVT.

**PICTURE HISTORY/MERSERVE-KUNHARDT FOUNDATION:** Archival Fine Art prints of 25 historic images, offered for sale by Public Broadcasting Service (PBS).

NARA publication *Technical Guidelines for Digitizing Archival Materials for Electronic Access: Creation of Production Master Files - Raster Images*.

### Duplicating and Copying in a Digital World

Outputting digital files to continuous tone film produces negatives of far more accuracy than those produced by traditional duplicating or copy methods. Once profiled, an LVT film recorder is no longer bound by the inherent contrast characteristics of film and can reproduce the tonal details of an original without resorting to “shadow normalization” or other artifices used in traditional duplicating and copying.

Whether an output is of a restored color transparency, a deteriorated acetate pellicle, a broken glass plate, or simply an accurate duplicate of an historical negative, LVT film recorders offer a range of options and versatility for historical collections.

### Digital Printing

CAW offers digital printing services on Epson Stylus Pro 4800 and 7800 printers. We print on the finest museum quality ink jet media, using only Epson UltraChrome K3 inks, collaborating with clients to determine the best digital printing solution. Within a full ICC workflow, every effort is made to insure that clients receive the quality and results they expect. Print longevity is addressed through consultation with Aardenburg Imaging and Archives, one of the world’s leading experts on image permanence and digital print research.

### FTP File Transfer

CAW maintains its own FTP server, where, via an intuitive web-based interface, clients can transfer files to us. Conversely, for clients that do not have their own FTP capability, we can post files for them to retrieve at their convenience. Each client is given its own password protected folder. Linking FTP file transfers to LVT film outputs truly makes the concept of “duplication from a distance” a reality.

# Recovery of Deteriorated Acetate Negatives



THE CHICAGO ALBUMEN WORKS HAS DEVELOPED A UNIQUE PROCEDURE FOR REMOVING, DUPLICATING, AND PRESERVING THE PHOTOGRAPHIC EMULSION FROM DETERIORATED ACETATE SAFETY FILMS.



Deteriorated negative and recovered image courtesy of the Metropolitan Museum of Art, New York, NY.

## Recovery of Deteriorated Sheet Film

Introduced in the early 1930s to replace nitrate based films, acetate negatives frequently undergo excessive shrinkage, which proceeds over time until the gelatine emulsion can no longer adhere. The emulsion then separates from the acetate base, usually in irregular furrows, and as the shrinkage continues, the gelatine eventually folds onto itself and frequently breaks.

This process is accompanied by a strong acetic-acid-like odor, which can be easily detected and which can serve as a warning. Once furrows begin to form, either in the emulsion or in the gelatine anti-curl backing, the negative becomes virtually useless, and the emulsion will soon be cracked beyond all recognition.

The method employed by CAW to salvage these deteriorating negatives involves four steps. First, the emulsion is chemically released from the acetate base. Next, the image pellicle (the removed emulsion layer) is cleaned and placed in a series of carefully controlled solutions, which allow its distortions to relax. Thirdly, the flattened pellicle is scanned using standard scanning techniques, producing a high resolution digital file, suitable for both archiving and LVT film output.

## Recent projects:

**MUSEUM OF THE CITY OF NEW YORK/LUCAS-MONROE THEATRE COLLECTION:** Recover 500/8x10" deteriorated acetate negatives. Digitize original image pellicle and output as 4x5" duplicate negative via LVT. Return image pellicle and deliver files on hard drive with metadata.

**LIBRARY OF CONGRESS/FRANCES BENJAMIN JOHNSTON, CARNEGIE SURVEY OF THE SOUTH:** Annual contract to recover 50-80 deteriorated acetate negatives ranging in size from 5x7" to 8x10." Produce traditional contact interpositive/duplicate negative sets, and digitize the original image pellicle. Return pellicle and deliver files on Mitsui gold archival DVD with metadata.

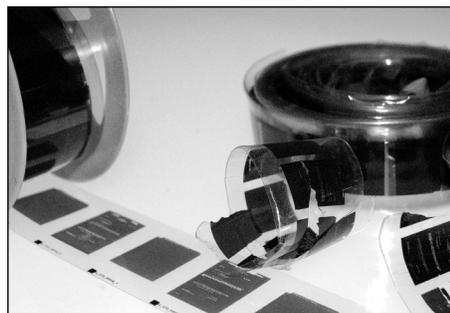
**NORFOLK SOUTHERN CORPORATION/NORFOLK AND WESTERN HISTORICAL PHOTOGRAPH COLLECTION:** Recover over 500 deteriorated acetate negatives ranging in size from 4x5" – 8x10." Digitize original image pellicle. Return pellicle and deliver files on Mitsui gold archival DVD.

**US ARMY HERITAGE AND EDUCATION CENTER:** Recover 120 rolls of deteriorated acetate microfilm. Digitize each frame and deliver negative and positive copies on 35mm polyester microfilm. Deliver files on Mitsui gold archival DVD.

Lastly, the pellicle itself is dried and returned (unsupported) to the collection. The image pellicle is extremely stable and requires only a modest temperature and humidity environment for archival stability.

## Recovery of Deteriorated Microfilm

The same deterioration that infects acetate sheet film can also affect microfilm, making traditional roll-to-roll duplication impossible. In our laboratory, a deteriorated microfilm will be carefully unwound in sections and digitally imaged, with each frame eventually edited to a separate file. The resulting set of files can be delivered on DVD (Mitsui Gold Archive) in TIFF, JPEG, or PDF format, or, if new microfilm is desired as well, outputted to archival microfilm.



# Traditional Duplicating and Printing Services

## Film Based Archival Duplication

Negative duplication using the interpositive/duplicate negative methods described in the NARA publication *Requirements for the Duplication of Negatives: Shadow Normalization Tone Reproduction* has been largely supplanted by the hybrid, file-to-film approach described previously.

However, there are still circumstances where an institution may prefer a film interpositive as intermediate to a negative, rather than a digital file. To accommodate these needs, CAW continues to provide traditional IP/DN duplication. The interpositive or duplicate negative can be scanned at a later date, although without quite the fidelity obtainable by a scan directly from the original.

The specifications followed by CAW for image density, image contrast, and film type are those described in the NARA Requirements.

The preservation interpositive (and its resulting duplicate negative) provides an accurate and archival record of the original and is the traditional means by which an endangered collection can be preserved and utilized. The film interpositive serves as a preservation master; from it scans can be taken as well as duplicate negatives of any printing characteristics can be produced.

Optical Duplication on 70mm and 125mm roll film is no longer offered.



## Copy Negatives

Copy negatives are produced via LVT output of high resolution scanner or digital camera files. CAW no longer produces copy negatives by direct camera exposure onto film.



File courtesy of Museum of Photography, Film, & Television, Bradford, UK.



POP Print courtesy of San Francisco Museum of Modern Art

Image: *Open Your Mouth and Shut Your Eyes*, Lewis Carroll (Charles Lutwidge Dodgson), 1860.

## Printing in Traditional, Silver Print Media

The Chicago Albumen Works offers printing services in nearly all silver-based printing media.

### Gelatine Emulsions of the Twentieth Century

- Fiber Base Gelatine Silver Prints
- RC Gelatine Silver Prints

### Printing-out Papers of the Nineteenth Century

- Photogenic Paper
- Salt Paper
- Albumen Paper
- Gelatine Chloride POP

Whether for reference or exhibition, these prints combine technical understanding and historical judgment. CAW takes pride in doing more than merely printing in a particular medium; we attempt to capture the character and feel that the original photographer achieved. We have printed for exhibition the work of many notable photographers, including: Eugene Atget, Eduard Baldus, Mathew Brady, Walker Evans, Francis Frith, William Henry Jackson, Fred E. Miller, Eadweard Muybridge, Timothy O'Sullivan, Jacob Riis and Wm. Lyman Underwood.

## Chicago Albumen Works' Centennial™ Printing-Out Paper (P.O.P.)

Gelatine printing-out paper has been on the market continuously since its introduction in 1885. As of 1987, CAW has been responsible for continuing its presence among the dwindling list of photographic printing papers. With its unique nineteenth-century printing characteristics, P.O.P. is an essential to the lexicon of silver printing papers. Centennial™ is manufactured in Europe, exclusively for CAW. For ordering and further technical information, contact us or visit our website.

## Recent Projects:

**QUEENSBORO PUBLIC LIBRARY/LONG ISLAND (NY) DIVISION:** Create traditional contact IP/DN sets of 94 original circuit camera negatives, ranging in length from 16" to 70." Digitize duplicate negative and output to full size archival inkjet print. Deliver files on Mitsui gold archival DVD with metadata.

**NARA, PACIFIC REGION-SAN FRANCISCO:** Contact duplicate on 4x5" archival film 1,075/3.5x5" original nitrate negatives.

## Collection Services

### Collection Surveys

To assist an institution in the preparation of a preservation program, CAW conducts condition assessment surveys of negative collections. The resulting survey report, which may describe the collection at object level or bulk level, will include background information on the types of media found, the specific condition(s) of the items surveyed, a discussion of the conservation issues exhibited by the collection, and suggestions for the development of a preservation program for the collection that is consistent with the institution's mandate and resources.



### Collection Management

CAW offers collections management and database formation for smaller collections that may not have the requisite on-site capabilities. Using the EmbARK™ database software from Gallery Systems and in conjunction with our digital archiving services, we can produce a database that is fully functional, searchable, and continuously expandable. EmbARK databases are fully exportable to other applications and can be directly available for web access.



### Disaster Recovery

CAW possesses the technical know-how and the facilities required to receive and process frozen photographic materials resulting from water damage. Should your collection suffer water damage, contact us immediately for advice on stabilization, shipping techniques, and recovery options.



## Chicago Albumen Works

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