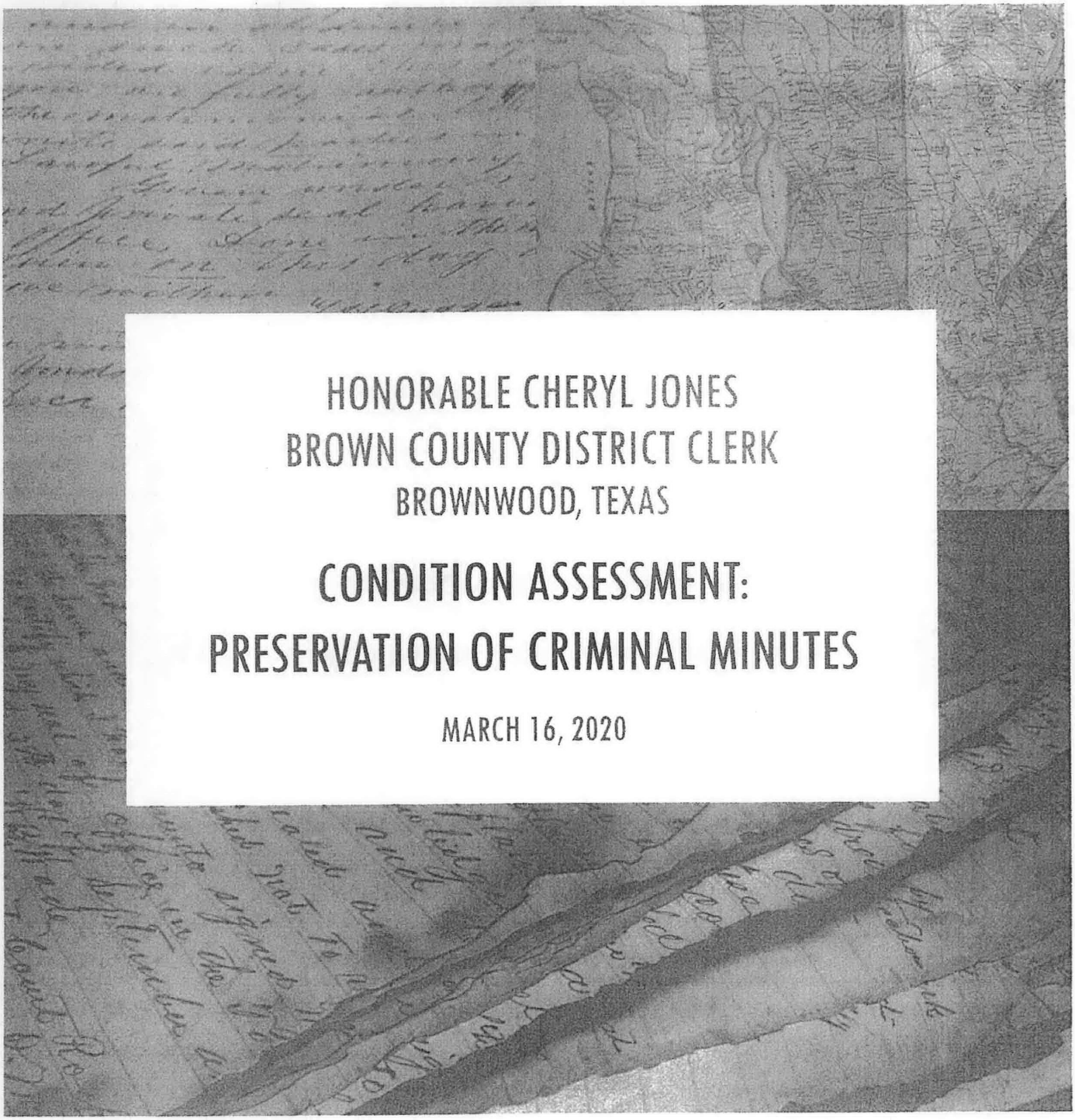

HONORABLE CHERYL JONES
BROWN COUNTY DISTRICT CLERK
BROWNWOOD, TEXAS

CONDITION ASSESSMENT: PRESERVATION OF CRIMINAL MINUTES

MARCH 16, 2020

Kofile

Powering Modern Government

March 23, 2020
(Exhibit #6)

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CONTACT INFORMATION

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EXECUTIVE SUMMARY

PROJECT OVERVIEW

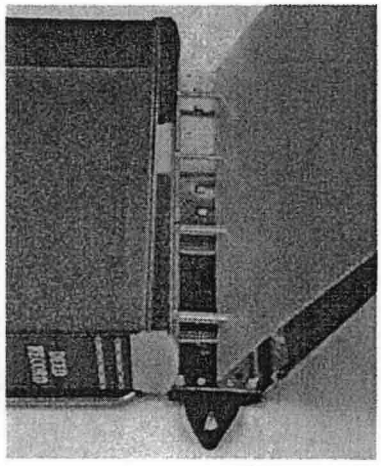
This proposal addresses the preservation and archival digitization (including image capture, processing, and enhancements) of Criminal Minutes Vols. A-F, M, and G dating 1884-1914 (eight volumes with a Good Faith Estimate of 3,720 Pages) for Brown County District Clerk's Office. The solution herein provides for the preservation, long-term management, and digital access of this collection. Kofile Technologies, Inc. (Kofile), will address all of the necessary services for these assets.

Kofile's unique archival products and exclusive U.S. Patents are the results of years of research, testing, and development.

Following this combination of conservation science and physical preservation, the returned assets are chemically stable for 300—500 years.

Kofile proposes a unique solution that no other vendor can offer. Kofile has revolutionized the preservation industry with efficient archival products designed *specifically for local governments*. Kofile's services and products assist archives by providing superior solutions to common records management issues. Each *exclusive* product is the result of our Made-in-America ingenuity—made possible by the sacrifices and vision of the immigrants and pioneers represented in the County's collection.

Preservation insures the survival of **source originals** for the application of future technologies. Kofile is the only developer and manufacturer of the *Lay-Flat Archival Polyester Pocket™* and *Disaster Safe County Binder™* (DSB). Kofile owns the patent on the *Lay-Flat Archival Polyester Pocket™* and possesses patent-pending status on the DSB. No other company can offer the DSB.



With the DSB, a polyester foam insert ensures physical support to the book block. Encapsulation allows documents to hang from the binder's posts.

Preservation includes conservation treatments, surface cleaning, flattening, deacidification, and mending. Sheets are encapsulated and bound into DSBs. Encapsulation may split volumes, which doubles the number of binders.

Do It Once, Do It Right, Do It Forever. Kofile's archival digitization services are not *'as-is'* or *'scan it & forget it.'* Kofile's basis for success is decades of experience, realistic solutions, and professional analysis. Many of our projects involve re-work for collections already imaged or indexed by low-bid vendors. Kofile invests in the best hardware and software. Technicians are trained to handle fragile documents. Images are the highest quality and are free of distortion and loss of information due to capture.

PROJECT GOALS FOR DIGITIZATION

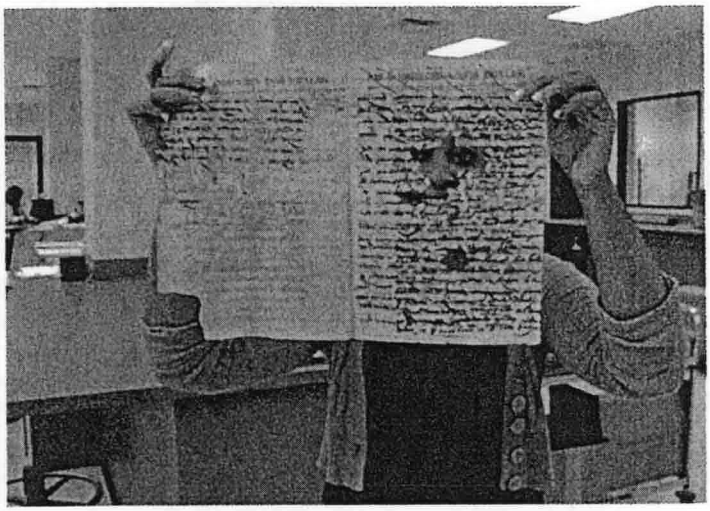
- ✓ Eliminate/reduce manual searches
- ✓ Expedite searches with more records available for electronic retrieval
- ✓ Protect originals by reducing daily use
- ✓ Archival binders for long-term storage of originals

Kofile's professional services, proprietary technology, and patented materials provide the constituents of the Brown County with a true cost-savings. Kofile takes pride in "*off-the-shelf and on-the-shelf*" service. Kofile's headquarters and lab is located in Dallas, TX, and there is a lab in San Antonio, TX. Stacy Cortesano, Account Manager, handles all communication and ensure the project is completed on schedule. The Brown County District Clerk is assured of quality service above-and-beyond expectations.

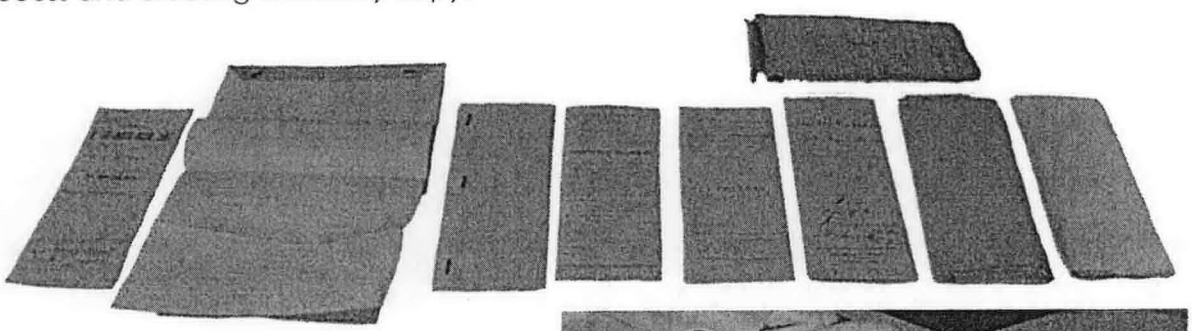
PROJECT UNDERSTANDING

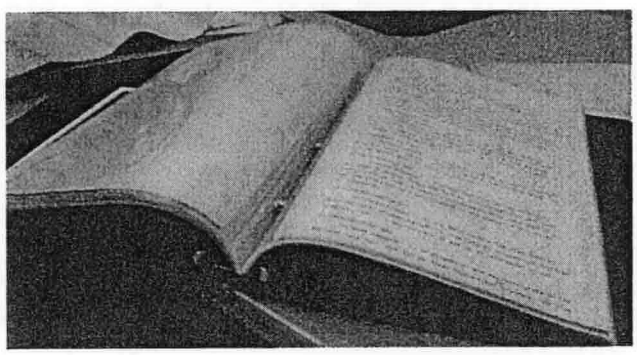
Records document and verify our existence—their survival is essential to protecting life, liberty, and property. No one wants to hear, "I'm sorry, but those pages were stolen, lost, destroyed, or are inaccessible." Historical records are lost without a proactive plan to maintain and preserve them.

Book and paper preservation protects indispensable records for hundreds of years. Preservation minimizes the chemical and physical deterioration of the page and prevents text loss. Its goal is to prolong the existence and useful life of the original. Oftentimes, this includes preserving and removing the original from public access and creating a security copy.



This 1828-1829 Spanish document records a property exchange. It suffered from iron gall ink burn. Even with the greatest of care and handling, the risk of losing fragile pieces of text and further compromise integrity is high.





The Harris County District Clerk, Houston, TX, is the repository for Case File No. 37096, captures a glimpse of the early history of an iconic American financial empire. It documents the case of Howard R. Hughes [Sr.] vs. Peden Iron & Steele Co. from late 1905 to 1906. This Case File (above) was preserved for posterity and returned to the County.

Preservation can incorporate any combination of conservation, treatment, stabilization, preventative care, or digitization—or any maintenance or repair of the resource to stabilize it or protect it from further deterioration. Treatment of the original source includes cleaning, flattening, deacidification, and mending.

Records stewards are faced with an insurmountable task—the responsibility to ensure the physical protection of collections and to maintain access to critical data. Even if the records are fragile, extremely brittle, and lack microfilm (analog) security copies, access is often necessary.

Many factors threaten the permanence of historical assets. Records are composed of organic materials, such as paper, cloth, leather, paste, and glue. These components are

DEACIDIFICATION (ALKALIZATION)

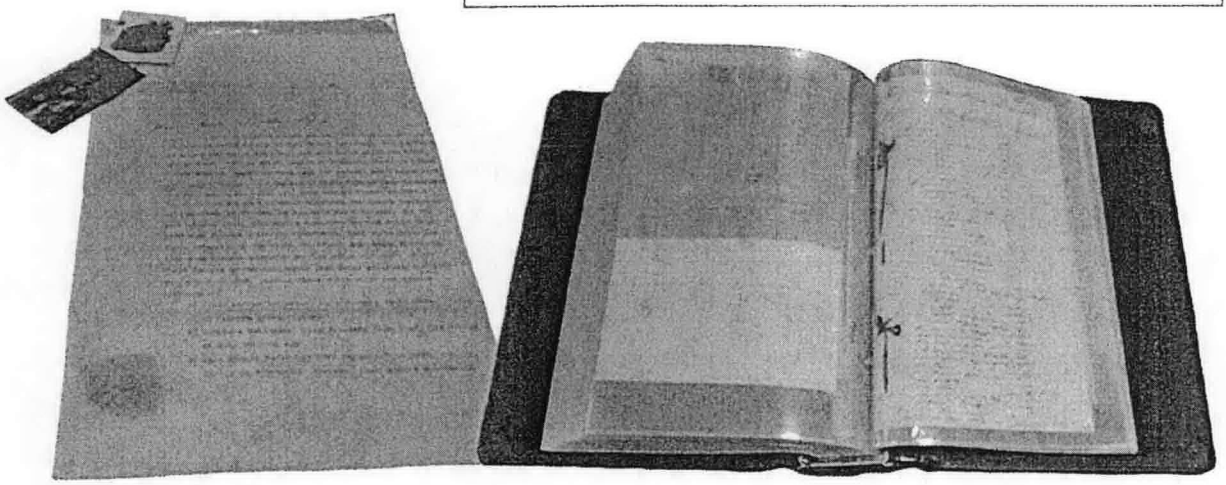
The addition of a finely divided alkaline material to paper fibers. The addition of an alkaline buffer is approved for use on papers that would otherwise deteriorate because of their tendency to produce acid, or for acidic papers that cannot be washed.

AIC Definitions of Conservation Terminology, Directory of the American Institute for Conservation of Historic & Artistic Works (AIC).

WHAT THIS MEANS TO BROWN COUNTY

If the paper does not have acid-free components, the chemicals deteriorating within the paper fibers and materials cause deterioration of bindings and pages. Over time, these papers become increasingly acidic. This breakdown is evident in yellowing or browning paper. In addition, the paper becomes brittle and loses its resistance to folds. Deacidification will halt this process.

Most are familiar with the experience of handling of an old book—the binding is worn; the pages are brittle and yellowed; and it emits a slight odor. As the years pass, handling grows more difficult and the book visibly ages. The aging can be halted through conservation. While a fraction of damage to the books is due to handling, the major culprit is the acid in the paper fibers. This is accomplished through deacidification.



Dating to the 1840s, these files document a Texas county's legal history. The document pictured left had a tintype and an official seal attached to it. It chronicles a series of correspondence between Brazoria County and the Kingdom of Sweden. Following conservation and imaging, the documents were encapsulated and bound for return.

hygroscopic (readily absorbing and retaining moisture). Unmonitored environmental conditions will compromise the life span of a permanent and/or historical record.

Records also deteriorate as a result of handling, which damages bindings and pages; acidic inks such as iron gall ink, which "eats through" paper; and improper storage methods, which threaten the structural integrity of the volumes. Another factor is the introduction of bleaching agents or acidic-sizing agents into the wood pulp paper-making process as a way to brighten paper. Now, years and decades later, acidic, dull yellows replace the bright white. These properties encase the assets in an acidic time bomb.

Kofile provides the professional conservation skills and resources. Kofile forms enduring relationships with our customers and remain loyal to each project.

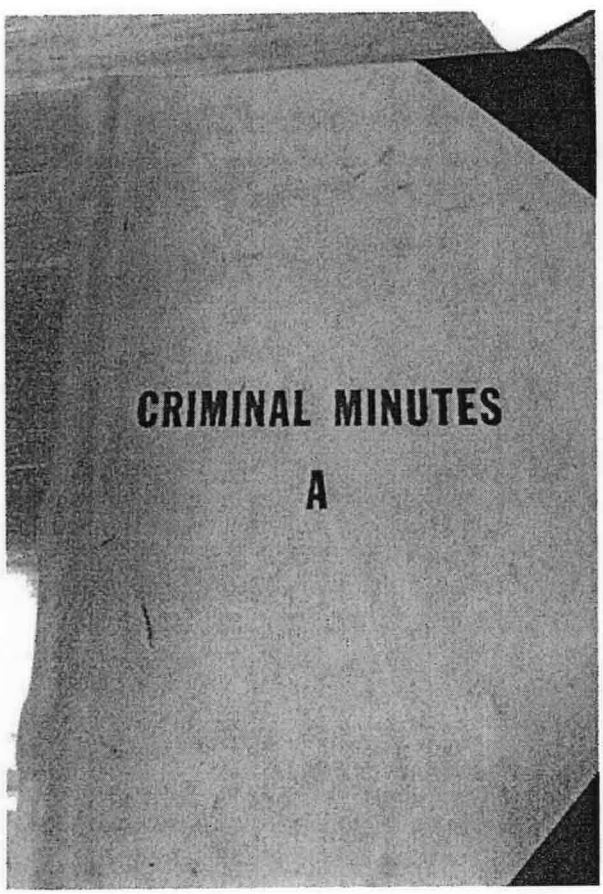
RECORDS ASSESSMENT

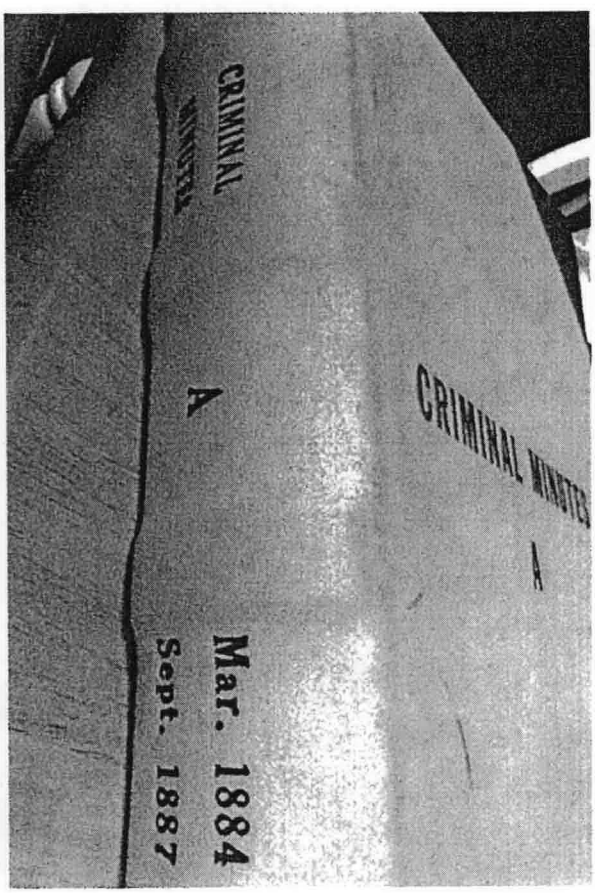
RECORDS ASSESSMENT

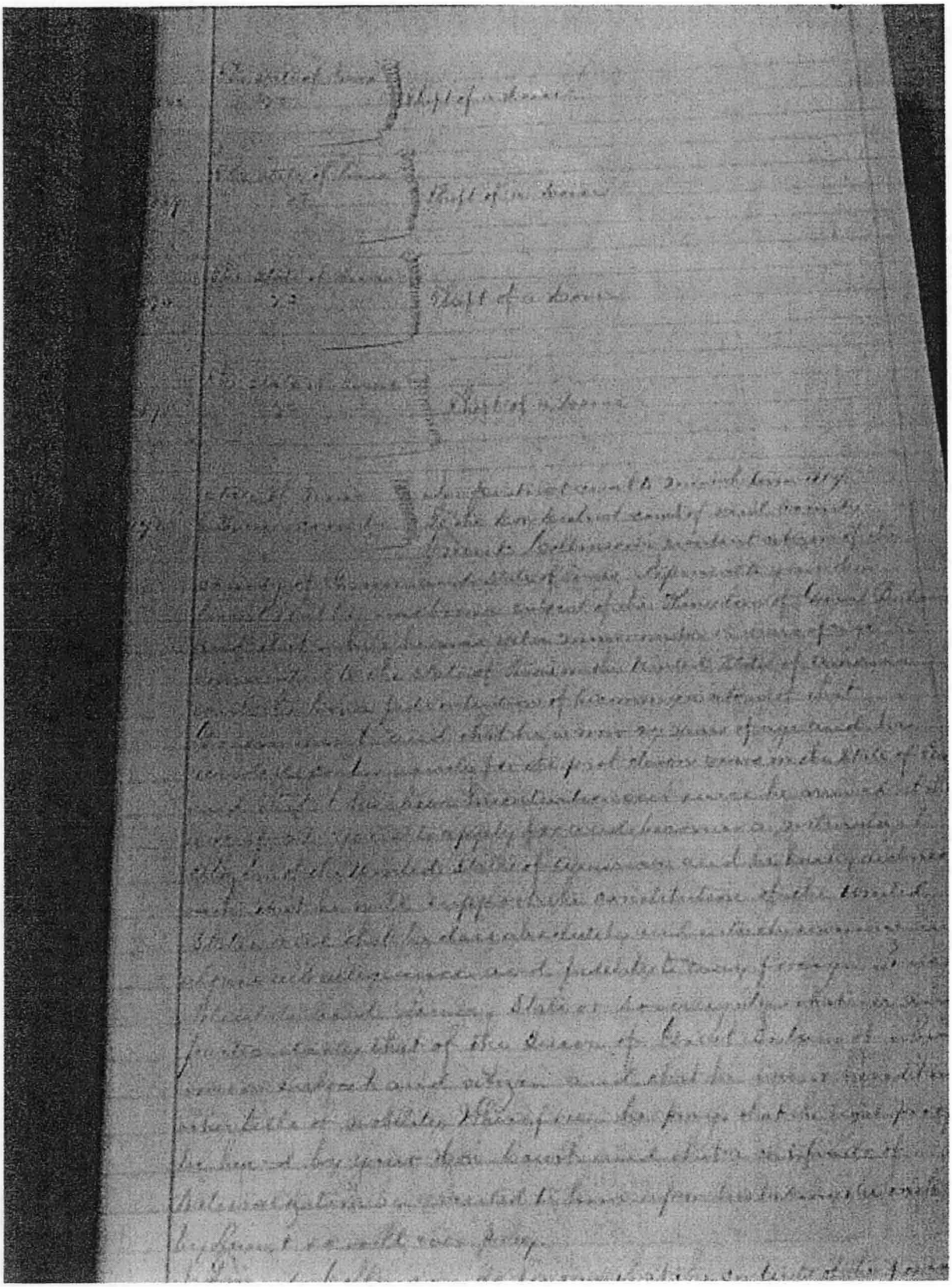
This inventory was assessed on-site by Kofile representative, Stacy Cortesano, in Fall 2018. All volumes are in good condition for their age (dating March 1884—June 1914). There were no tape repairs noted. All volumes contain manuscript (handwritten data). These are sewn binders, and the sheet measure 18" x 12". Please see the following pages for photographic documentation of these volumes.

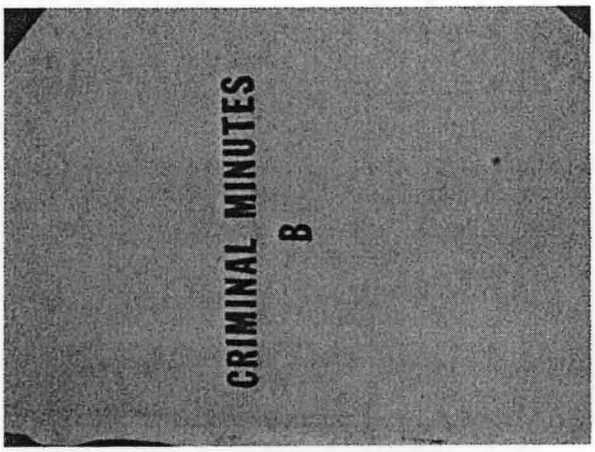
RETENTION SCHEDULE

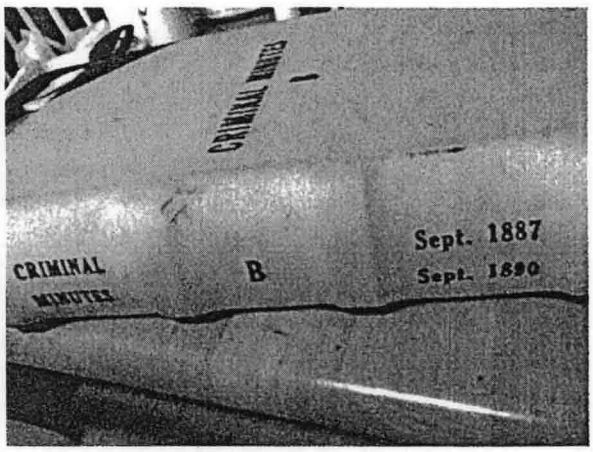
Historical and archival government records have permanent retention schedules. This proposal addresses the repository of historical and permanent assets maintained by the Brown County District Clerk' Office. These volumes maintain a PERMANENT retention schedule according to *Local Schedule DC*, TSLAC, 2011. Brown County is commended on its efforts to protect and preserve the original source records.

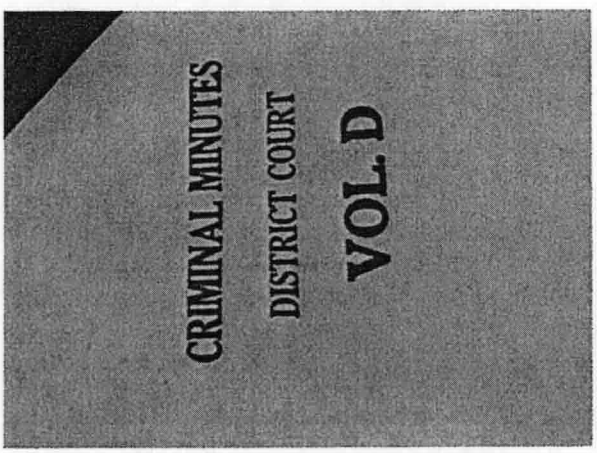


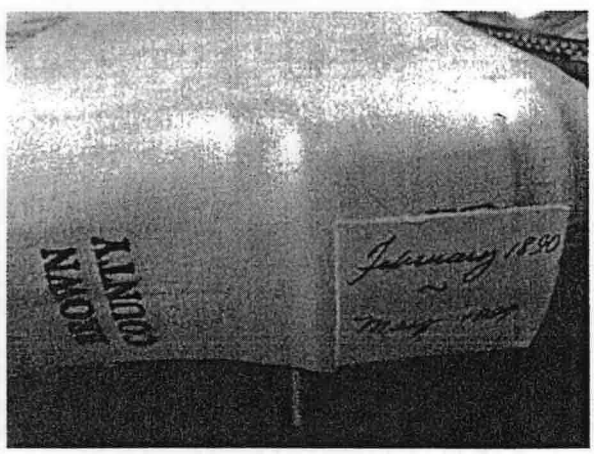


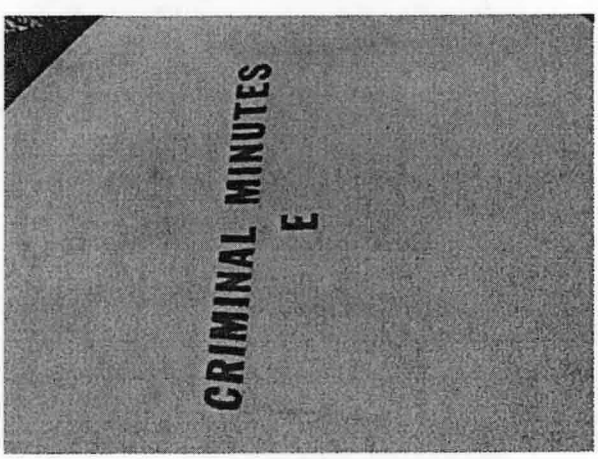


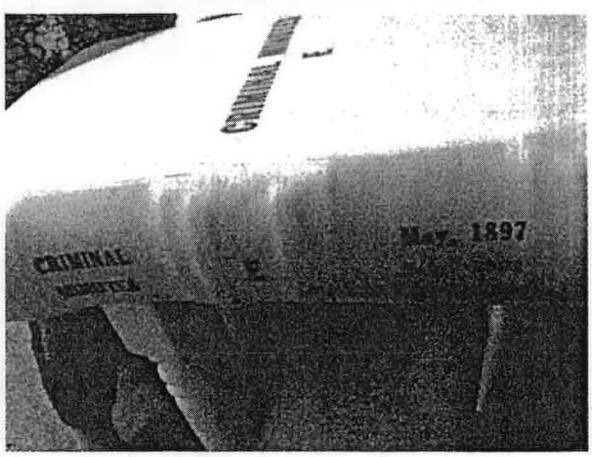

CRIMINAL MINUTES
B

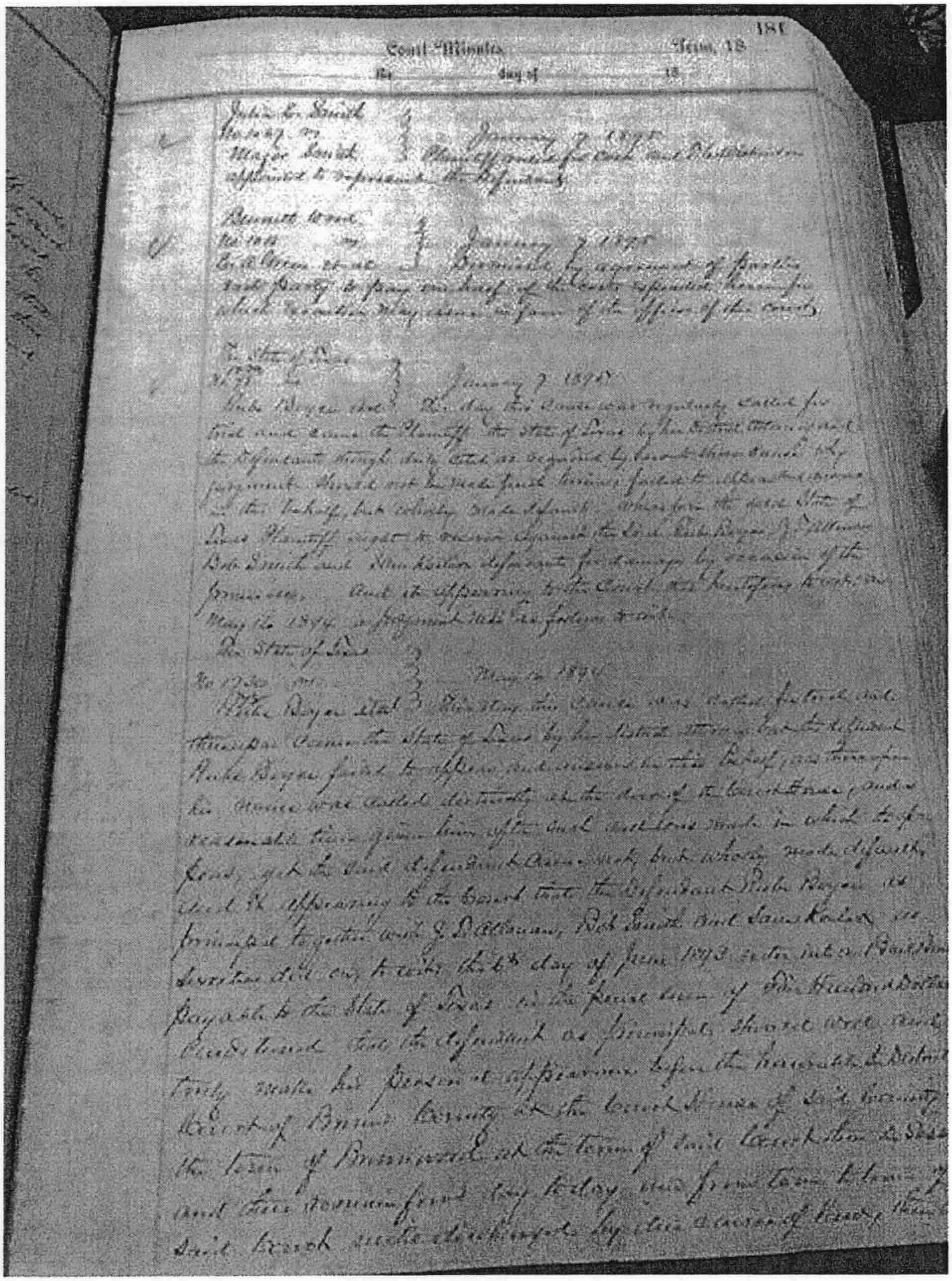

CRIMINAL MINUTES
B
Sept. 1887
Sept. 1890


CRIMINAL MINUTES
DISTRICT COURT
VOL D

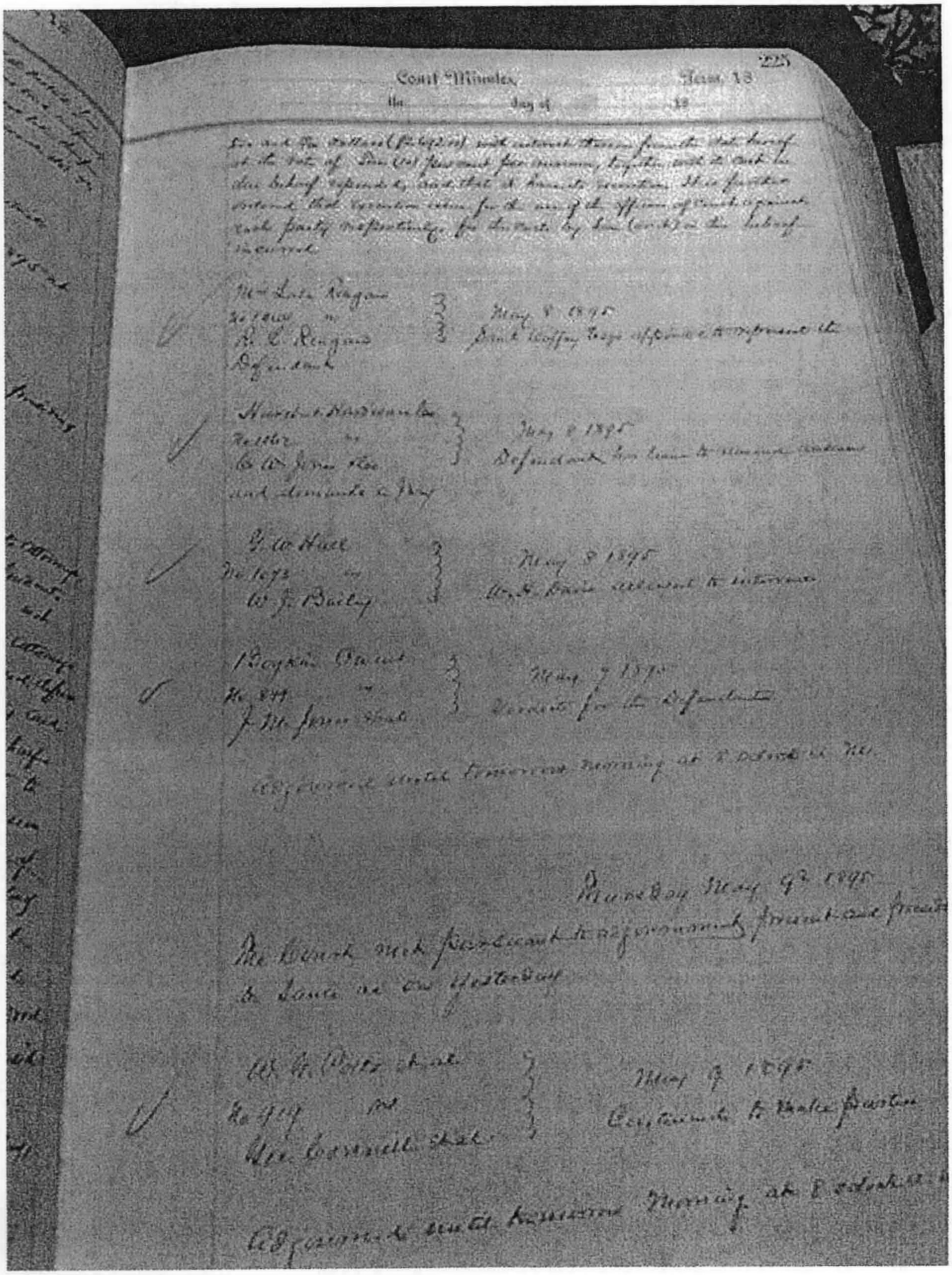

BROWN COUNTY
February 1890
May 1897

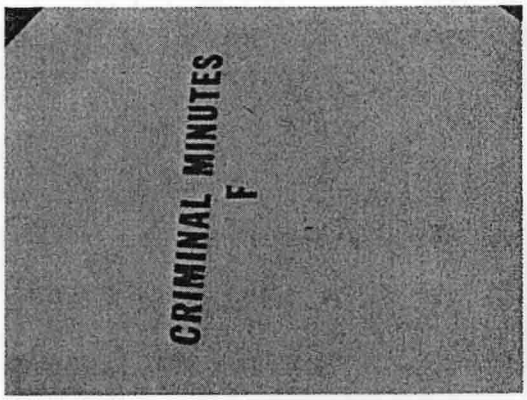

CRIMINAL MINUTES
E


CRIMINAL
May. 1897

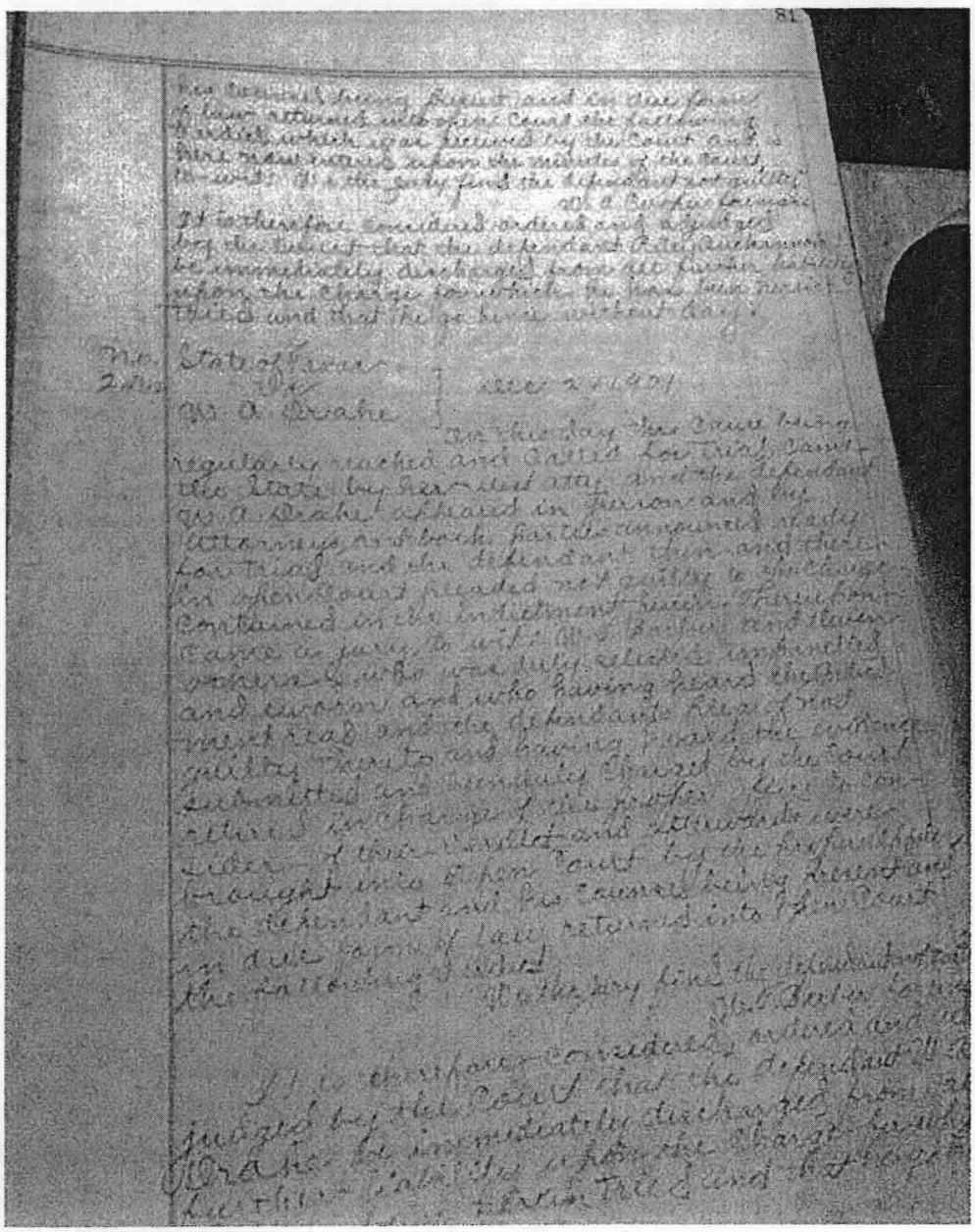

Court Minutes Term, 18 181

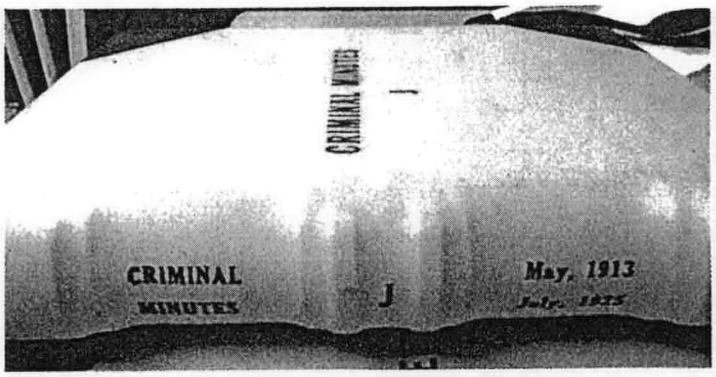
day of 18

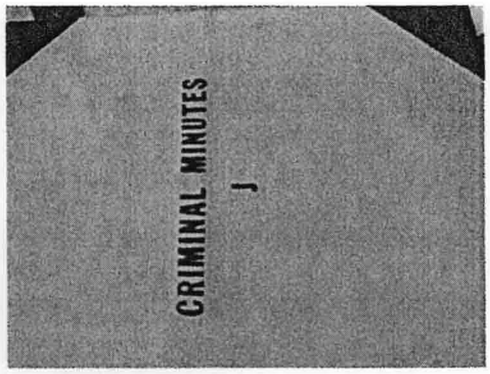

225
Court Minutes
Term 18
the day of 18
[illegible]
Mrs Lula Reagan
No 1260 vs
R. C. Reagan
Defendant
May 8 1895
Verdict for the Defendants
Adjourned until tomorrow morning at 8 o'clock a.m.
Thursday May 9th 1895
The Court met pursuant to adjournment present and presiding the same as on yesterday
May 9 1895
Continued to make parties
Adjourned until tomorrow morning at 8 o'clock a.m.

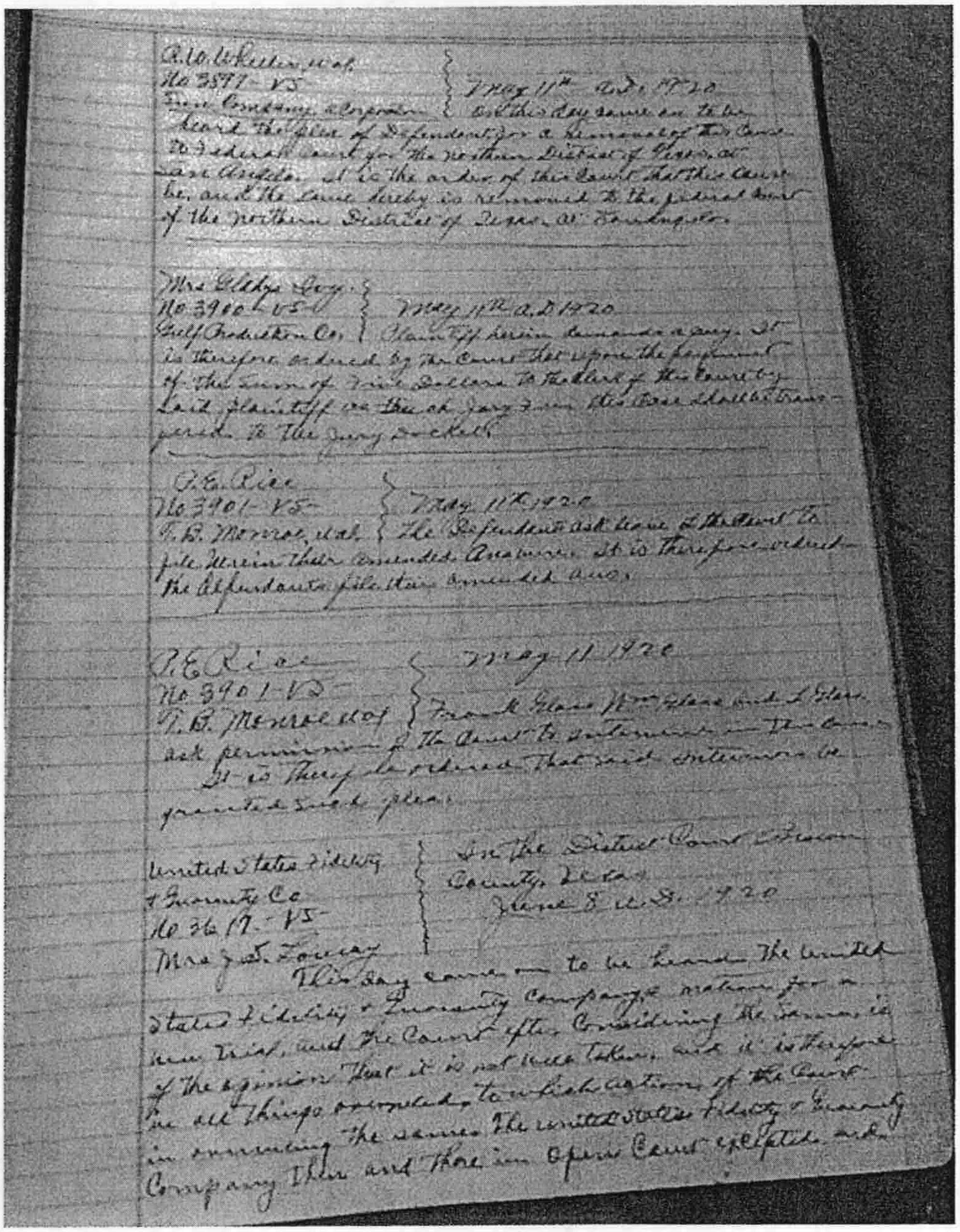

CRIMINAL MINUTES
F


CRIMINAL
F
May, 1901









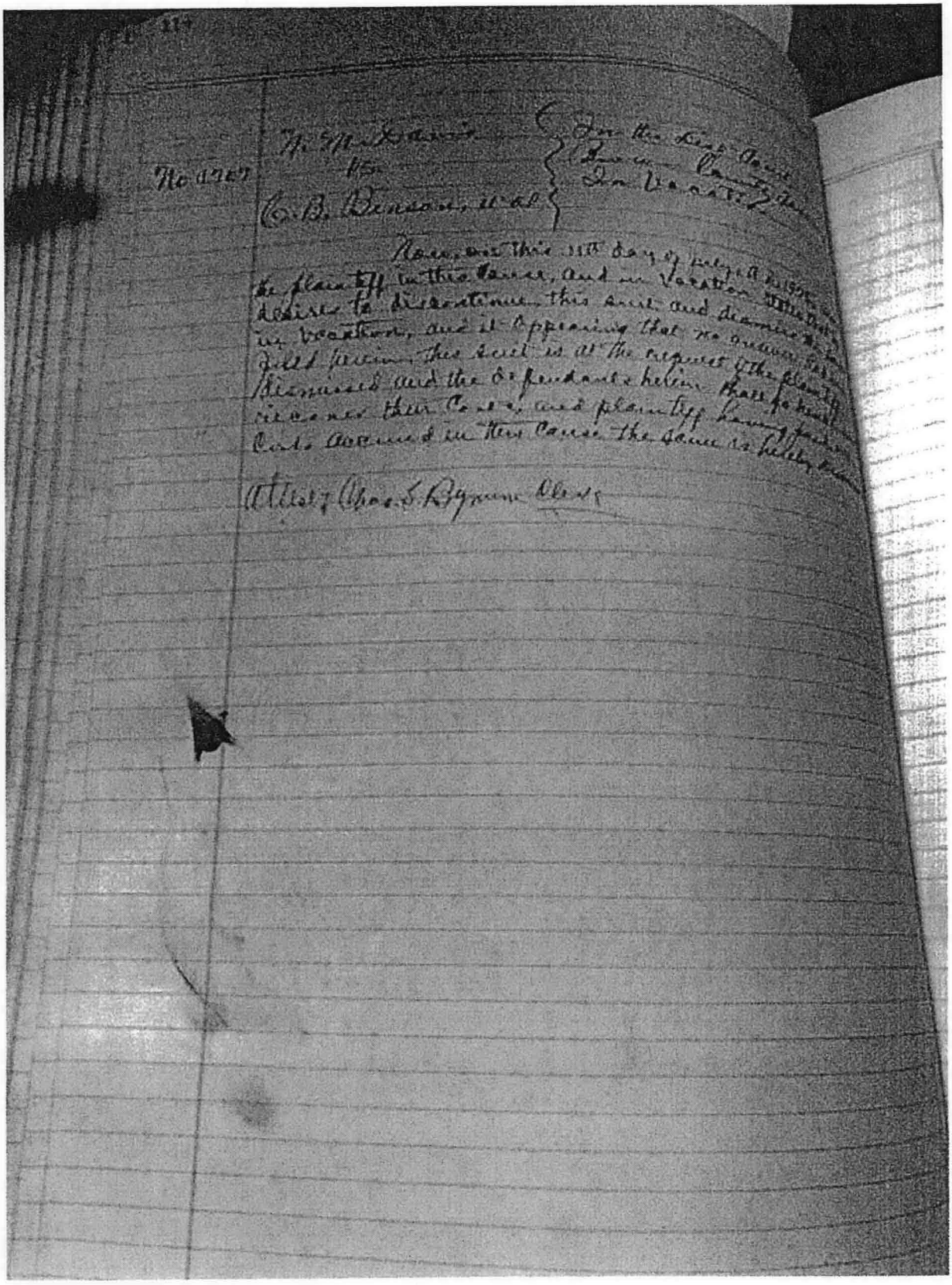
R. W. Wheeler, et al
No 3897 - VS
Gulf Company, a Corporation } May 11th A.D. 1920 On this day came on to be heard the plea of Defendant for a removal of this cause to Federal court for the Northern District of Texas at San Angelo. It is the order of this Court that this cause be, and the same hereby is removed to the federal court of the Northern District of Texas at San Angelo.

Mrs Gladys Loy
No 3900 - VS
Gulf Production Co. } May 11th A.D. 1920 Plaintiff herein demands a jury. It is therefore ordered by the Court that upon the payment of the sum of Five Dollars to the Clerk of this Court by said plaintiff as the [illegible] jury fee this case shall be transferred to the jury docket.

P. E. Rice
No 3901 - VS
T. B. Monroe, et al } May 11th 1920 The Defendants ask leave of the Court to file herein their amended Answer. It is therefore ordered the defendants file their amended ans.

P. E. Rice
No 3901 - VS
T. B. Monroe et al } May 11 1920 Frank Glass, Wm Glass and L Glass ask permission of the Court to intervene in this cause. It is therefore ordered that said intervenors be granted such plea.

United States Fidelity & Guaranty Co.
No 3617 - VS
Mrs J. S. [illegible] } In the District Court of Brown County, Texas June 8 A.D. 1920
This day came on to be heard the United States Fidelity & Guaranty Company's motion for a new trial, and the Court after considering the same is of the opinion that it is not well taken, and it is therefore in all things overruled, to which actions of the Court in overruling the same the United States Fidelity & Guaranty Company then and there in open Court excepted and



No 4767

W. M. Dodson
vs
C. B. Benson et al

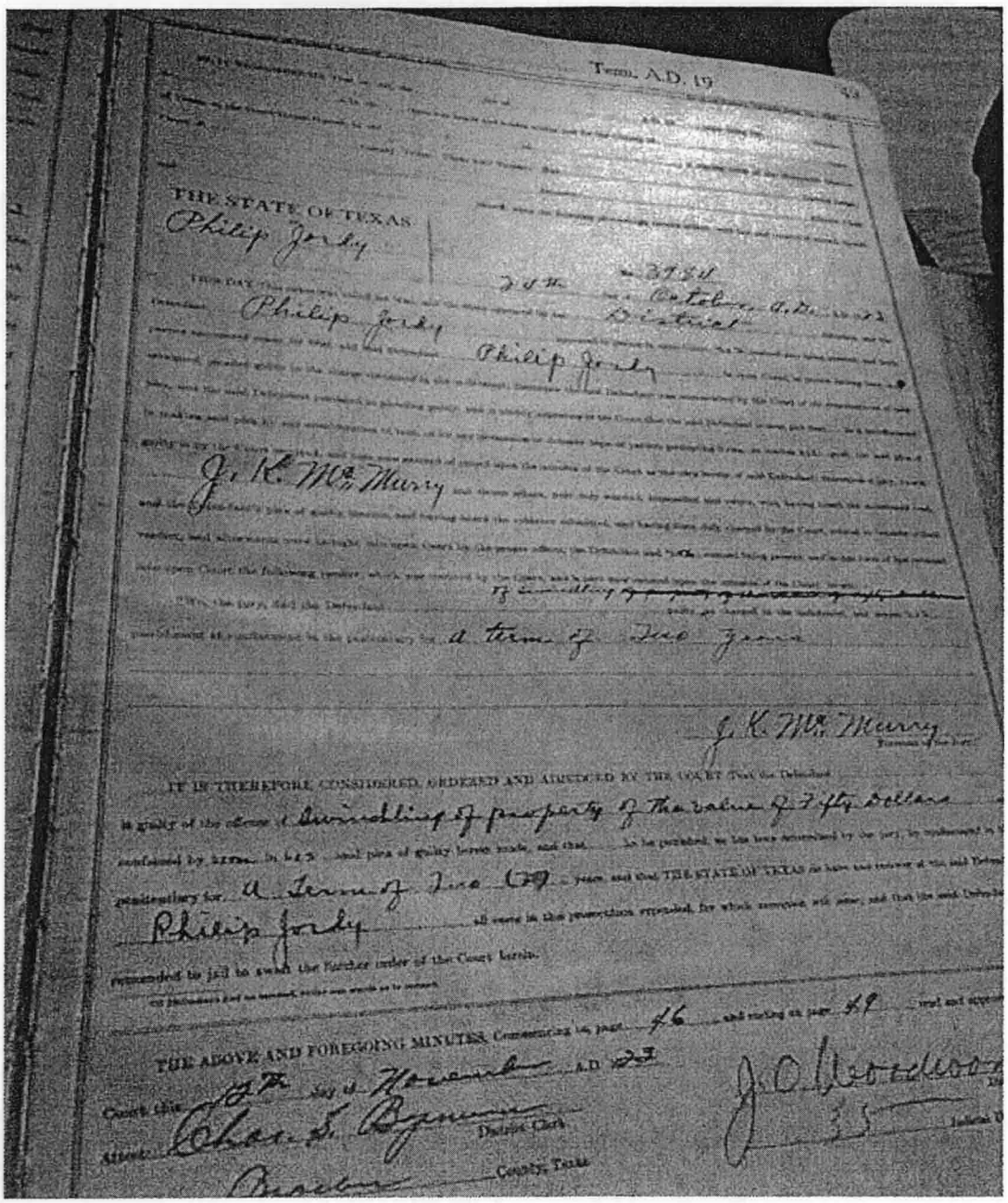
For the First Court
Bexar County Texas
Jan Vacation 1855

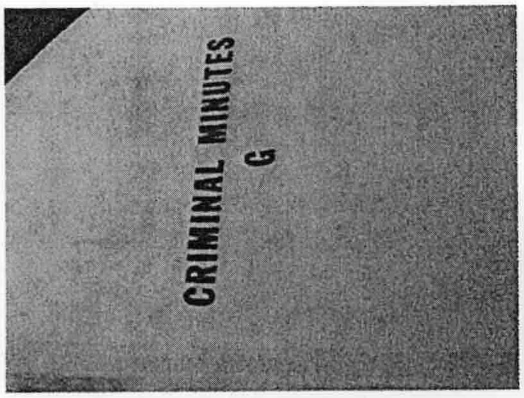
Now, on this 11th day of July A.D. 1855 ... the plaintiff in this cause, and in Vacation ... desires to discontinue this suit and dismiss ... in Vacation, and it appearing that no answer ... filed herein this suit is at the request of the plaintiff dismissed and the defendants herein ... recover their Costs, and plaintiff ... Costs accrued in this Cause. The same is hereby ...

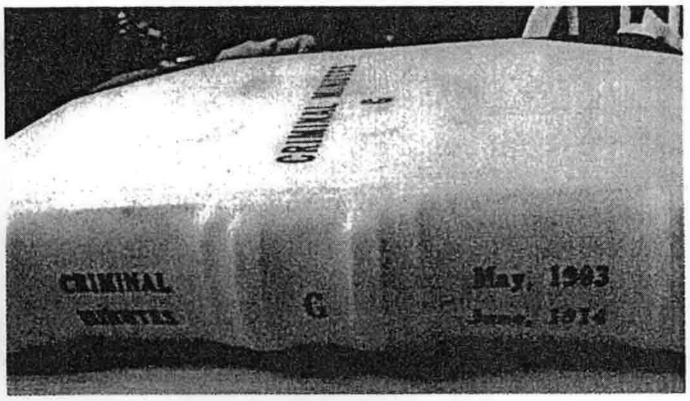
Attest Chas. S. Taylor Clerk

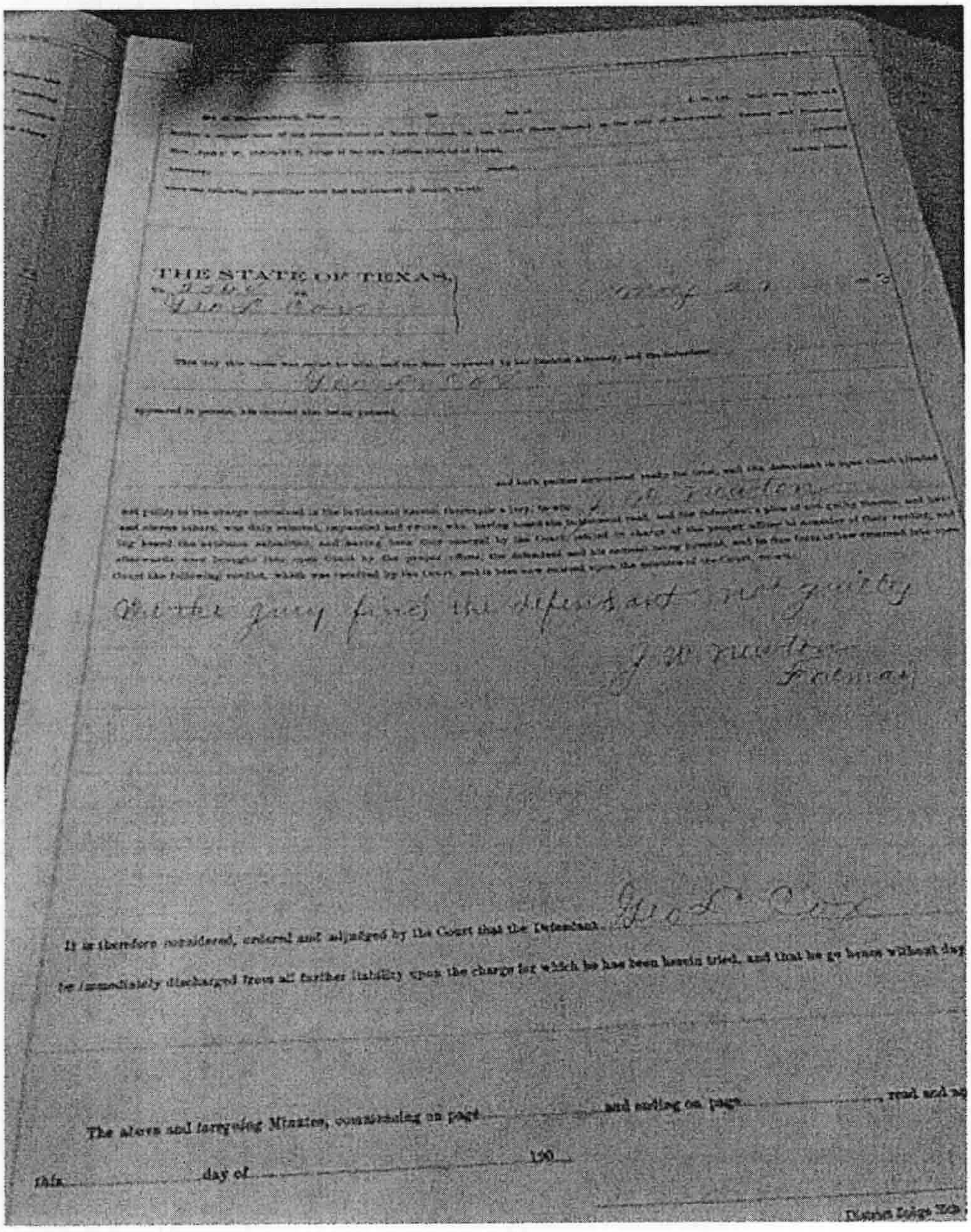

May. 1914


CRIMINAL MINUTES
M


Term, A.D. 19
THE STATE OF TEXAS
Philip Jordy
Philip Jordy
Philip Jordy
J. K. McMurry
a term of two years
J. K. McMurry
IT IS THEREFORE CONSIDERED, ORDERED AND ADJUDGED BY THE COURT That the Defendant
Swindling of property of the value of Fifty Dollars
Philip Jordy
THE ABOVE AND FOREGOING MINUTES
Chas. S. Bynum
District Clerk
County, Texas






THE STATE OF TEXAS

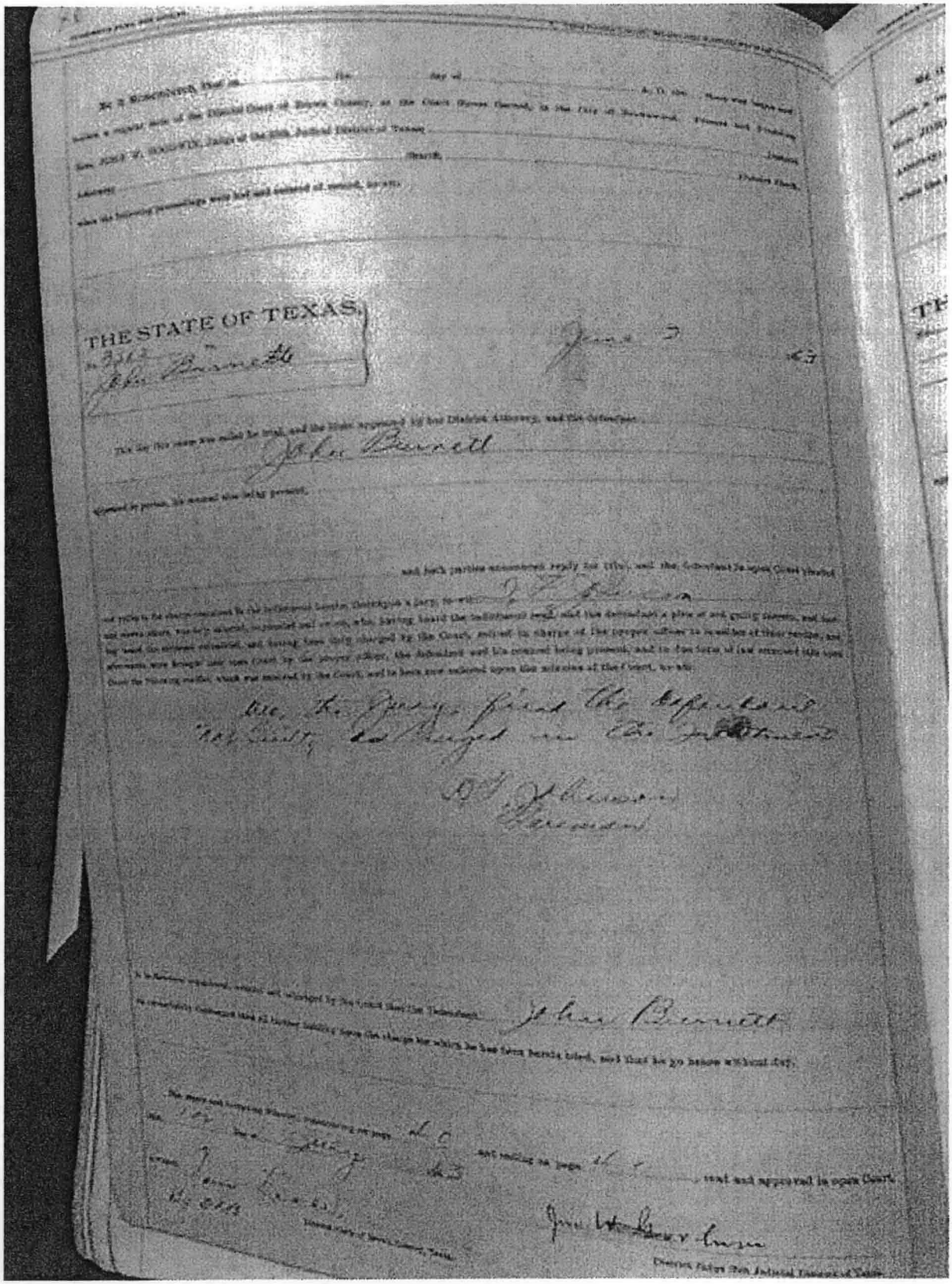
We the jury find the defendant not guilty

It is therefore considered, ordered and adjudged by the Court that the Defendant

be immediately discharged from all further liability upon the charge for which he has been herein tried, and that he go hence without day

The above and foregoing Minutes, commencing on page .... and ending on page ...., read and ap

this .... day of .... 190...


THE STATE OF TEXAS,
John Barnett
John Barnett
John Barnett

AREAS OF CONCERN

Many factors threaten the permanence of these assets. Deterioration is often the result of natural aging, a history of use, lack of environmental controls, and UV light exposure. *Other possible areas of concern for archival government records are documented following:*

Everyday use greatly affects collections. Sheets bear signs of grime and the natural oils of human hands. Exposure leaves sheets susceptible to damage and loss even with careful use. Many sheets suffer from mechanical damage and are dirty, brittle, and torn.

Index Books sustain the most use. Thus, they suffer greater risks of text loss and sheet deterioration. Paper strength is completely depleted from continuous use. Eventually, tabs and sheet fragments are lost. Immediate attention is often required.

Acidic Paper—In the past, papermaking processes utilized bleach to whiten sheets. In time, this paper becomes acidic—evident by brittle and discolored paper (yellowing or browning). Paper also brittles when relative humidity (RH) drops too low or fluctuates.

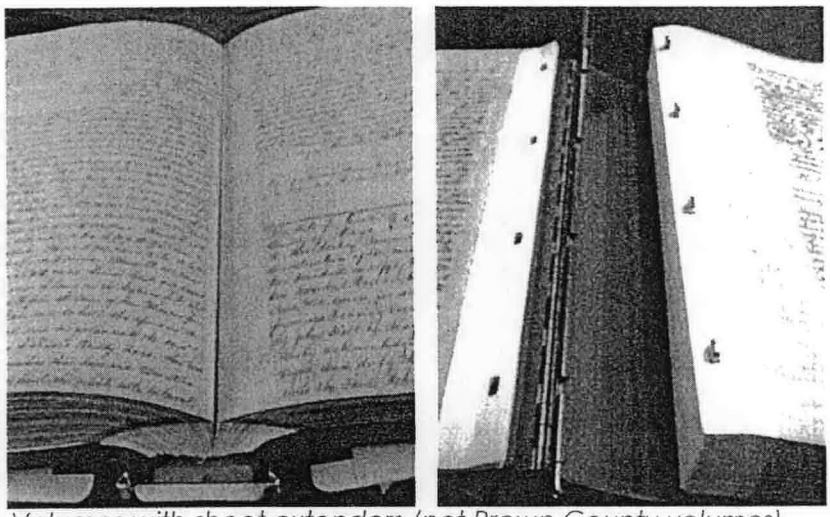
Acidic Ink—Acidic inks can "eat" or "burn" through a sheet. Unmonitored temperature and relative humidity (RH) accelerate this process. Inks also fade with exposure to UV light. Historically, clerks used iron gall inks. These inks contain sulfuric acid—which fades with time. With proper treatments, chemical breakdowns (e.g., acid hydrolysis) are remedied.

Attachments and Inserts—Many volumes contain irreplaceable inserts and attachments. The information documented on these inserts is at great risk of loss and damage. Kofile preserves the attachments and encapsulates them in sequence for return with the volume.

Broken Book Block—Once a binding fails, damage escalates. Sheets are free to drift from the protection of the book block. With exposure, fragments become abused and susceptible to loss.

Non-Archival Materials—The off gasses of deteriorating metals contribute to paper's chemical breakdown. Major culprits include the metal content of book spines, the surrounding physical environment, and non-archival fasteners (e.g., binder clips, paper clips, and staples). Off gasses eventually destroy the volume's structural integrity. Another symptom of metal oxidation is *foxing* (foxlike, reddish and brown stains or blotches on the paper).

Slumping (Leaning)—The average weight of a record book is 24 pounds. The pressure of leaning books (standing on end) causes permanent damage to bindings. This is known as slumping. Eventually, a damaged spine results in a broken book block and loosening of individual sheets. Appropriate shelving units are necessary in long-term archival storage.



Volumes with sheet extenders (not Brown County volumes).

Tape Strips (also known as Sheet Extenders)—Sheet extenders appear innocent. However, they are an inappropriate "quick fix" to a prevailing problem. To save collections, the underlying issues causing the deterioration of the sheets' margins need correction. The acidic content of the sheet extenders only adds to the paper's chemical breakdown. The acid used in the non-archival adhesive migrates into the paper's fibers, causing stains. Instead of solving the original binding problem, this chemical breakdown causes the paper's natural fibers to fatigue and deteriorate.

Removal is a long and arduous process. Each is carefully lifted from the page. The strength of the adhesive varies from page to page. In some cases, there is more than one sheet extender applied to the page. Particular care is taken to not rip or tear the sheet during removal. This process demands physical labor, because the application of heat would lift the film, but not the adhesive residue.

Tape & Non-Archival Adhesives—The Library of Congress warns "pressure sensitive tapes, such as scotch, masking, 'invisible,' quick-release, cellophane, and even so-called 'archival' tapes" are all culprits. These tapes are unstable. All tapes and adhesives of these types will stain the paper and may cause inks and colors to 'bleed.' Many lose their adhesive properties and fall off with age, leaving behind a residue that is unsightly, damaging to the item, and difficult to remove." [1]

Adhesive stains may lead to imaging issues—approving low-bid imaging and microfilming may result in illegible images. To enhance quality, conservation is essential. A conservator can remove water-based, synthetic, and pressure-sensitive adhesives.

Water Damage—Humidity and water are the most destructive threats. After exposure to water, pages adhere to one another when compressed. Separation without loss of text and water soluble inks (such as ink signatures) is vital. Water damaged records are extremely fragile. Water damage can also lead to mold and binding failure. The necessary conservation treatments are time consuming and require a highly skilled conservator.

Water can result in unmitigated damage. First, red inks smear, then blue inks, and lastly, black inks. Thus, often original signatures are often the first lost in an archives.

High moisture also compromises a binder's integrity and leads to rust (the result of

[1] *The Library of Congress. "Preservation FAQs." <www.loc.gov/preservation/>.*

oxidizing metal off-gassing). Rust, corrosion, and off-gasses spur chemical breakdowns and irrevocably damage bindings, papers, and recorded information.

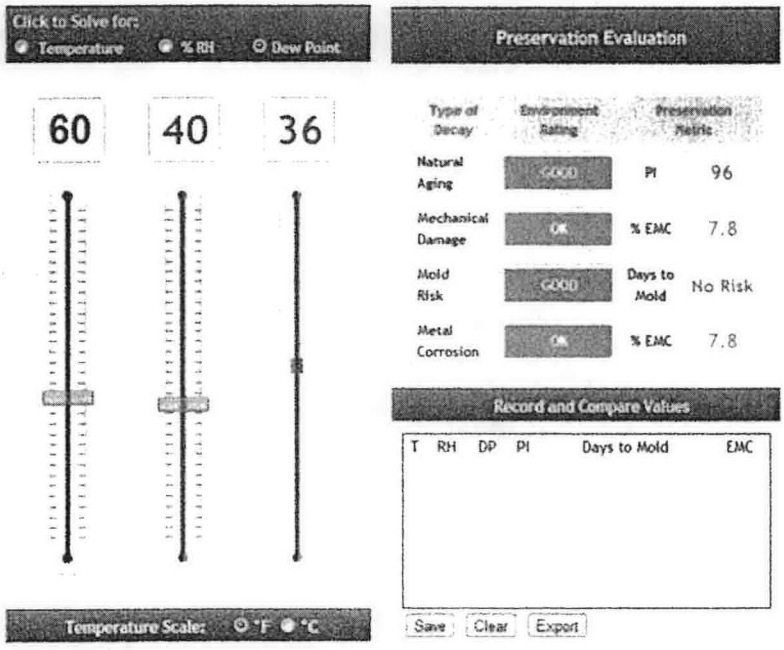
Mold & Mildew—In an archives, mold and mildew often emerge following flood, fire, the presence of micro-organics, or proximity to toxic substances (asbestos or bacteria). Mold will have a visible presence on the binder or page's surface. It is often visible emerging from the spine's binding and creeping down a page's margin. Mold is considered active if the growth is damp and smears. Inactive mold is dry and powdery.

Items with active mold are bagged and sealed on-site before transport so that the spores do not spread. Items with active toxins require ozone treatment in an isolation booth. Without isolation, the mold spores could enter the HVAC and infect a facility. This treatment kills the mold spores—meaning they will not grow or re-germinate. Inactive mold is still an allergen and requires removal.

Temperature & Humidity Monitoring—Even slight changes in temperature can double paper's natural aging rate. In reality, temperature and Relative Humidity (RH) are not consistent in a courthouse (especially on weekends). Regulate temperature to 68°F ± 5°F—even in the winter. Temperature fluctuation promotes mold. If uncomfortable, forewarn staff and patrons to wear adequate clothing.

Temperatures above 75°F and RH higher than 60% encourage mold and other bacteria growth within 48-72 hours.

Relative Humidity (RH) is the amount of water vapor present in the air. Maintaining a set point of 40-45% RH is optimal, but costly. The maximum acceptable total RH variation, or operating range, is 5% on either side of this set point. RH should never exceed 55% or drop below 30%. Archival product companies market small, inexpensive devices (Data Loggers) to assist in monitoring a public records archive.

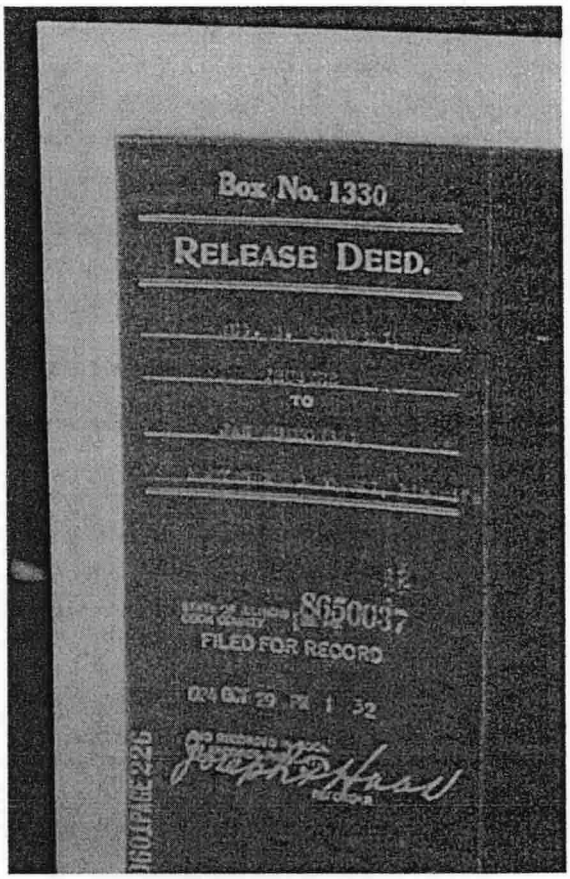


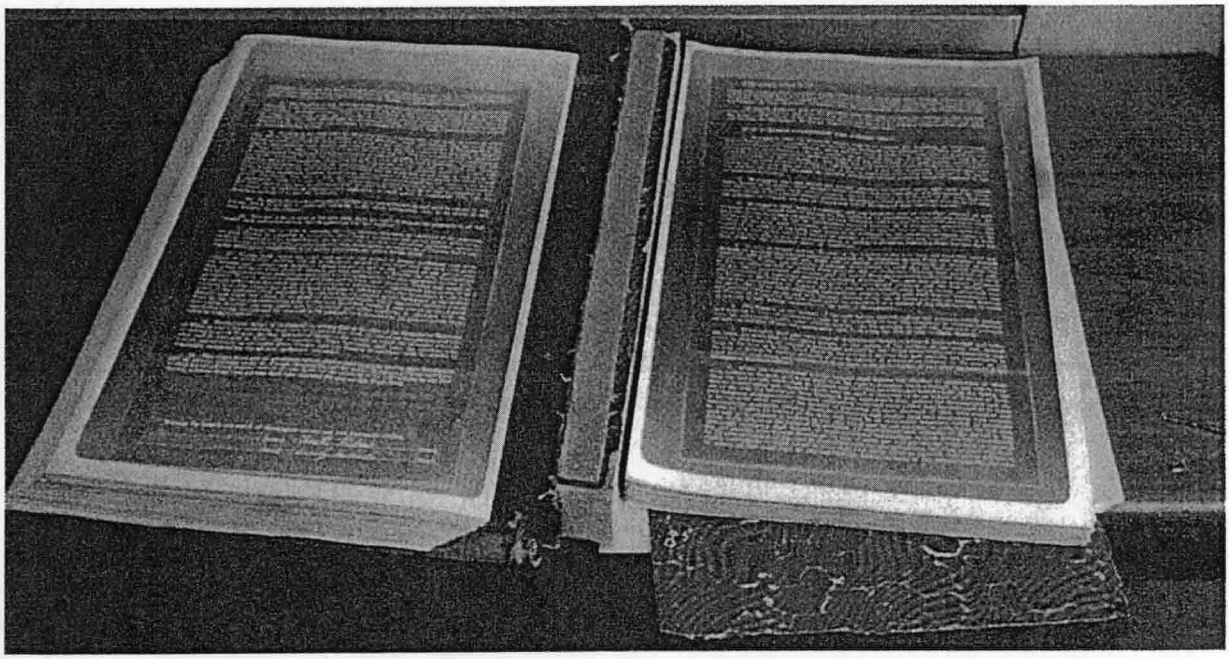
Visit the Image Permanence Institute (IPI) at www.dpcalc.org to explore the correlation of temperature and RH on natural aging, mechanical damage, mold risk, and metal corrosion (as exampled above). These images are the property of IPI.

Guillotining—Always question vendors if they recommend power cutters to dismantle sewn books. Kofile never attempts any procedure potentially resulting in a loss of text or weakening of document integrity. For these purposes, we do not endorse or practice guillotining. A sheet's binding margin should never be compromised.

Fading Photostats—Negative Photostats record irreplaceable information. However, time and public use deteriorate the emulsion (*sulfiding*). Deterioration directly results from the use of exhausted 'fixing baths' or dirty bath water during the original silver print processing. The deterioration is also evidenced by the fading or yellowing of the sheet. Without treatment, text becomes illegible. Eventually the recorded data will disappear.

Binding Margin—Sometimes a book contains sheets in which the writing continues into the binding margin. To rebind and protect these sheets, encapsulation, not punching, is the only solution. This is also true of books that previous vendors have guillotined.





While not depicting Brown County records, these photographs illustrate the problems discussed above. Both portray fading Photostats and the bottom photograph also portrays guillotining.

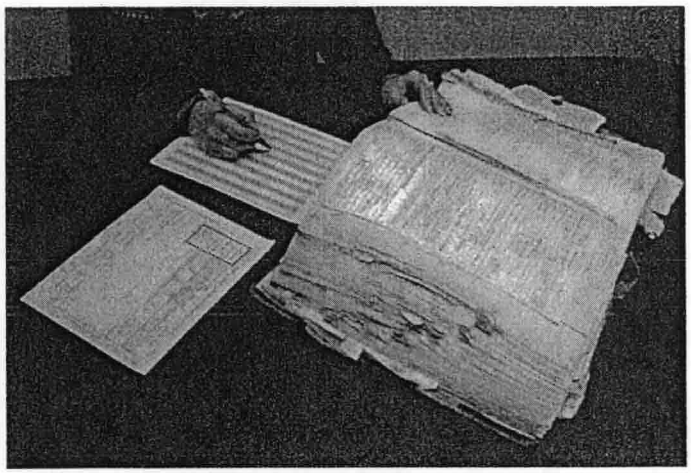
PRESERVATION PROCEDURES

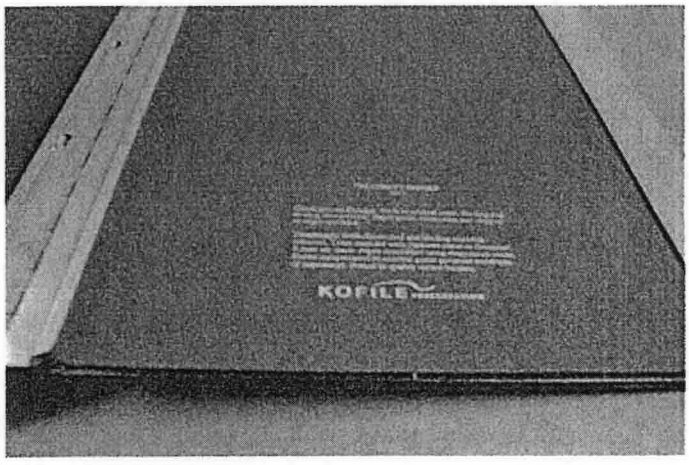
The work order and individual documentation logs accompany the item throughout the entire process. Each batch of records is entered on a color-coded production control board. Storage areas are color-coded to correspond to each batch or group of records. Records are housed in the same location throughout the project so that any given record may be located quickly.

DOCUMENTATION OF TREATMENT

Upon receipt, items are assessed to document condition prior to service. Each sheet is inspected to ensure that it receives the appropriate level of treatment. A written log is retained to record:

- Date(s) of treatment
- Name(s) of the conservator who worked on the item or held a supervisory position
- Name(s) of the technician who worked on the item
- Condition of document upon receipt
- Special characteristics
- Presence of acidic glues
- Presence of previous repairs
- Number of pages, proper pagination, and blank pages
- Presence of pressure sensitive material
- Presence of staples, paper clips, brads, etc.
- Identity of certificates/records (manuscript, Photostat, typed, etc.)
- Notation of original lettering on spine and covers
- Loose pages or attachments
- Any other information pertinent to the identification of the volume





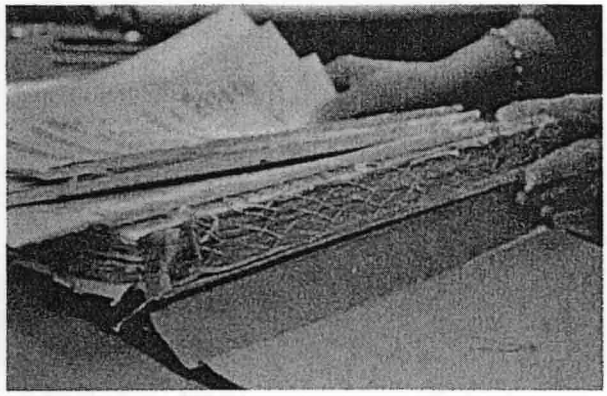
Please note that this is not a conservation treatment report disclaimer—this is provided in every finalized re-bound volume.

Kofile

CONSERVATION SPECIFICATIONS

Kofile regularly addresses historical and permanent documents, including manuscript, typescript, Photostat, micrographic, tri-fold, blueprint, re-creations, plats, and maps. Kofile never utilizes any treatment, repair, or maintenance that is not 100% reversible. At any stage of the process, the County is notified of unusual or unexpected conditions. The project will proceed only with the authorization by the District Clerk.

Dismantle (volumes for rebinding only)
Original binding materials, such as threads and adhesive residues, are carefully removed. Old manuscripts often have protein-based binding adhesives such as fish, bone, or rabbit skin glues. The application of steam with specialized equipment can soften the materials that are otherwise difficult to remove.



This compromised binding allowed the loose sheets to drift from the protection of the book block. Dismantling required careful removal by hand of original adhesives and threads.

Guillotine cutters are never employed. If trimming is necessary, it is done with handheld scissors or Jacques Board shears, which are specifically designed for trimming fragile paper. These allow Kofile to trim paper carefully and accurately with greater precision. Only one document is cut at a time to ensure no text is lost.

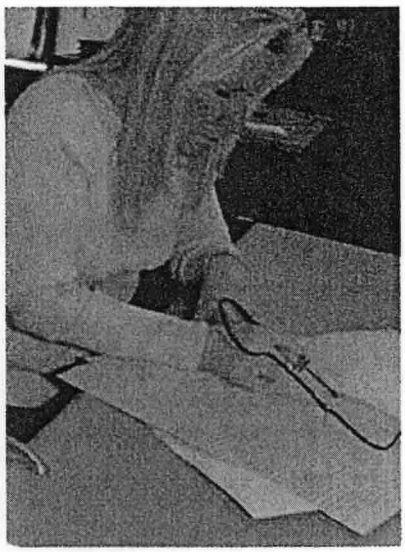
Surface Dry Cleaning
Surface cleaning is a generic term for the removal of materials deposited on pages. These include dust, soot, airborne particulates, sediment from water damage, mold/mildew residue, active micro-organic growth, insect detritus, or even biological or mineral contaminants. All have serious consequences during long-term storage. Removal methods vary in degree of simplicity. More elaborate systems require isolation, filtration, and personal protection. To improve appearance, superficial grime is removed with a soft dusting brush. A microspatula is used to coax insect deposits. Other tools include a latex sponge, powdered vinyl eraser, or soft block eraser.

Removal of Fasteners
Kofile will remove fasteners, page markers, and other metal mechanisms. Fasteners such as binder clips, staples, paper clips, string ties, rubber bands, brads, straight pins, etc. cause damage in short periods. This includes physical damage (decreased paper strength due to punctures or distortion) and chemical damage (rust).

Mold Remediation
Contamination results from flood, fire, or micro-organics, or proximity to toxic substances (asbestos or bacteria). The former requires treatment in an isolation booth. Fragile materials are vacuumed through a fine, mesh-screen overlay. Remediation such as freeze drying, desiccant drying, ozone treatment, etc. may also be necessary. While treatments kill mold or bacteria, elimination of stains is often impossible. Chemical treatments are only used

when mold is embedded into the fiber—and only in extreme cases. Dead mold spores can be removed with an ozone treatment. This is accomplished with a dry wash by a specially treated chemical sponge.

Removal of Tape, Adhesives, Varnish, or Old Repairs
Varnish, tape, and adhesive residue are reduced as much as possible without further degrading the original. Heat removal is used when adhesive is loose, old, or brittle, and peeling is use when removal by heat is unnecessary. Solvents are a last resort, and local application occurs only after testing. Peelers and tape are removed with two primary mechanical techniques: Heat Removal or Peeling.

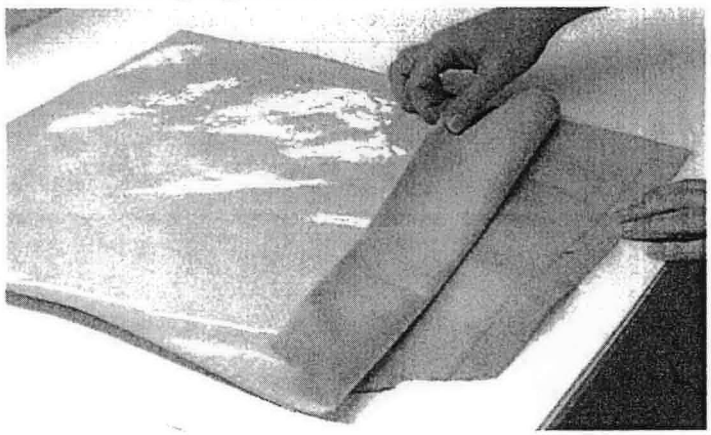


A Hot Tools tape remover softens adhesive to allow for removal.

A *microspatula* (sometimes heated) coaxes threads, tape, and glue from the paper. A Hot Tools remover can soften adhesive for removal. Dial-Temp controls the transfer of heat and guards against scorching. Remaining adhesive is treated with a gum compound eraser.

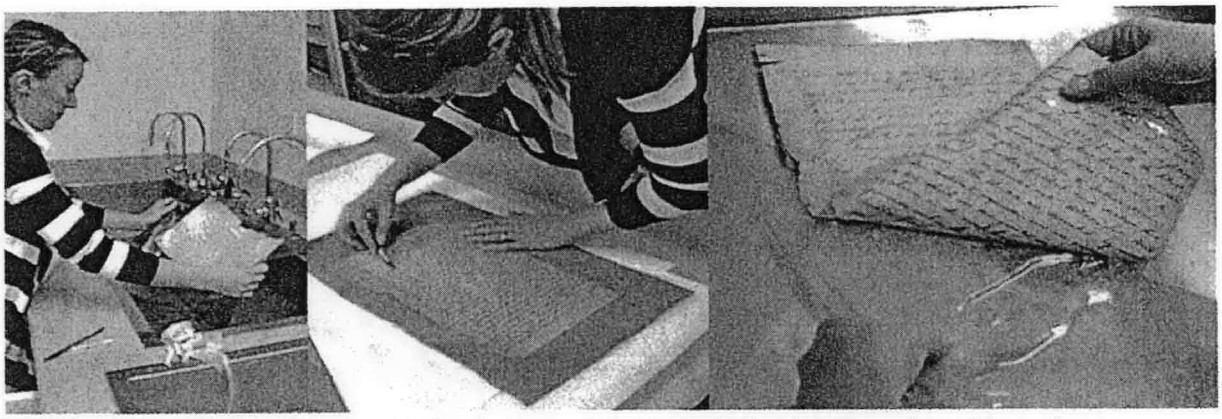
If mechanical tape removal is unsuccessful, the next alternative is chemical. Adhesive reduction begins with the most benign process. Chemical removal is the last resort. This is either a local or spot treatment or immersion in a solvent bath. Kofile ensures that its laboratories are equipped to process chemical treatments correctly and safely. Previous repairs that cannot be removed safely will remain.

Stain Reduction
Stains are reduced to the greatest extent possible after careful testing. Tape stains are reduced, but most stains are likely permanent. Many stains, such as water stains, are not treated. Other stains are treated either chemically or aqueously depending on the paper and ink. Kofile understands that many stain-reducing agents are not safe for iron gall ink. Maximum testing is necessary. When testing determines that a proposed treatment will result in harmful or irreversible consequences, Kofile will contact the client to discuss alternatives or a course of non-action.



Old mounting materials and adhesives often become acidic, stained, torn, and weak. They are often composed of Kraft paper or heavy board. Backings are removed through an aqueous process (water or steam) if not water-soluble. Backing in good condition remains if it causes no harm or if removal would cause harm.

Washing in Water
If possible, water-soluble repairs are removed with water or steam. Previous repairs that cannot be removed safely will remain. Only fully-trained, experienced, and supervised staff attempt removal of water-soluble repairs.



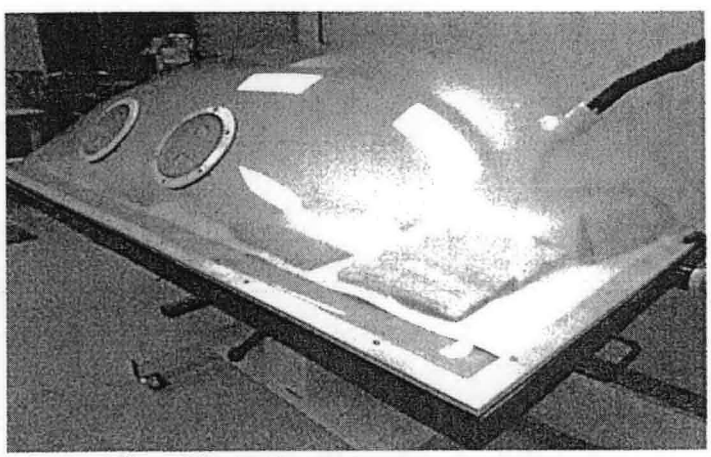
A Kofile conservator removes water-soluble adhesives and tape from a Railroad Document from a Kansas County.

While iron gall ink is safe for aqueous treatment, many types of ink may fade and compromise legibility. Therefore, extensive testing is required before treatment.

Flattening and Humidification

Improperly stored, papers become inflexible and retain a memory of the storage position. Tools to 'flatten' include tacking irons, heat presses, or an Ultrasonic Humidification Chamber. Kofile's technicians are experienced using all methods. Kofile is equipped with several dry-mount presses, and each conservation workstation has a tacking iron. The tacking irons have adjustable temperature controls to alleviate damage to the sheet.

The Ultrasonic Humidification Chamber can correct the most fragile document's folds and bends. Items are only humidified after testing the image solubility. This machine is enhanced with a cross flow and features a humidity dome and ultrasonic humidifier. Private labs are rarely equipped with this device, and this significant investment represents Kofile's foresight and commitment to offering the best available technology as a functioning and efficient vendor.



Ultrasonic Humidification Treatment.

Repair and Restore Paper

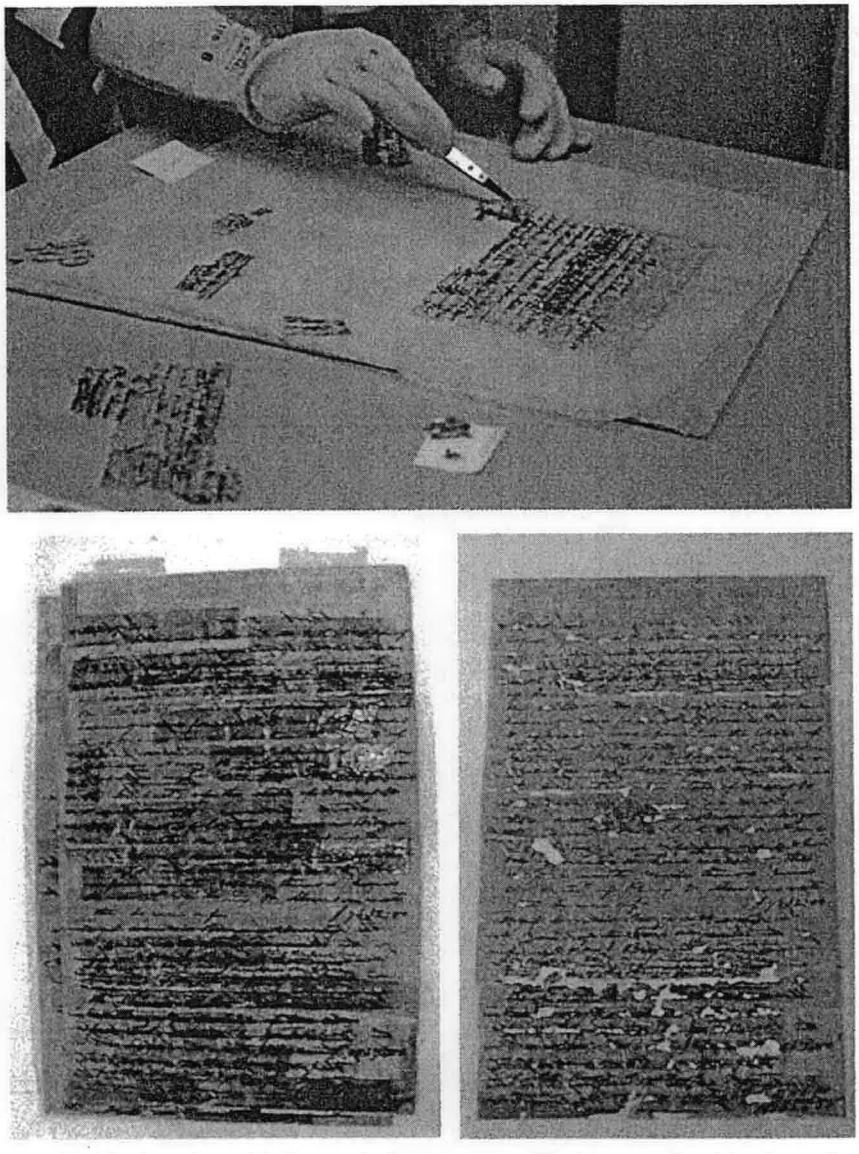
Mending torn paper is an art form. Mending uses a variety of materials depending on the paper's color, tone, condition, and weight. The length of the tear(s) and the degree of embrittlement or fragmentation are also concerns. Kofile generally mends tears greater than $^1/_2$" if the Document is going to be encapsulated.

All of the materials utilized for mending are acid free and reversible. Japanese paper and ethyl cellulose paste or Crompton tissue are used most often. Mending strips are water cut so the edge of the Japanese paper visually integrates with the original document, without clashing aesthetically or historically. Fragmented edges, folds, tears, cracks, voids, and

losses are all mended in this fashion.

Kozo paper, in natural and white finish, is commonly used because of its strength and transparent nature after application. While visible to the trained eye, it does not distract from the Document. Other types of Japanese paper used frequently include Zangetsu, Gampi, Tosa Tengujo, Seikushu, and Thin Uda.

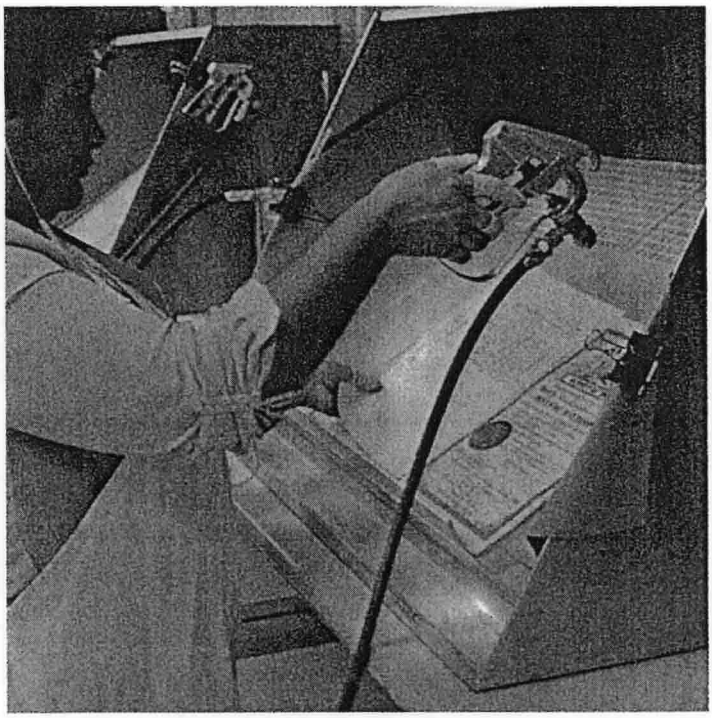
Filmoplast R® may also be used for reinforcement of damaged sheets. Filmoplast R® is a low-temperature, acrylic adhesive that bonds to Japanese Kozo paper. Kofile also constructs its own version of this material with acid-free tissue paper and Rhoplex liquid acrylic adhesive.



An 1848 Probate Record before and after treatment. The image to the right shows the page after deacidification, tape removal, and mending with archival Japanese tissue. The image above shows a Kofile conservator piecing the document together after the adhesive was reduced.

Deacidification

Deacidification is only performed after careful pH and compatibility testing. Kofile is equipped with multiple custom-built spray exhaust booths. All are routed through an HVAC system for optimum performance.



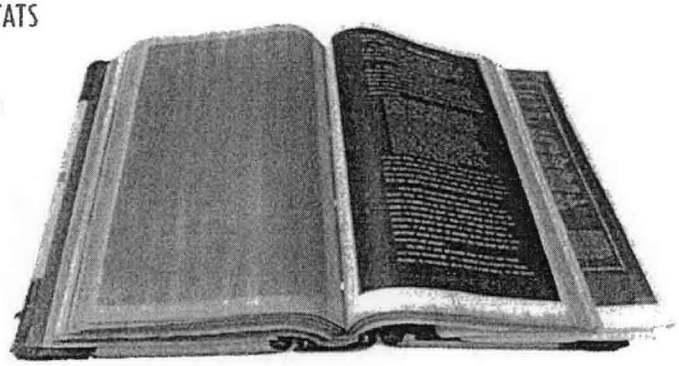
A commercially-prepared buffer solution is applied to both sides of the sheet with compressed air sprayer equipment, *see pictured right*. The solution is non-flammable and non-toxic. The active ingredient, magnesium oxide, neutralizes acid and provides an alkaline reserve. This chemical is inert, safe, and does not degrade the sheet.

Once the buffer is applied, the paper's pH alters slowly. After deacidification, random testing ensures an 8 pH with a deviation of no more than 2-4%.

ARCHIVAL SOLUTIONS FOR NEGATIVE PHOTOSTATS

The Problem

Time deteriorates Photostat emulsion (*sulfiding*). Exhausted or dirty 'fixing baths' during the silver print processing exacerbate damage, as seen through fading images or browning sheets. Eventually, text becomes illegible.



This is the only existing version of an volume recording Texas history. It is now the original source. It is fading due to poor quality control during the Photostat's original development.

The Solution

Our Archival Polyester Stabilizer preserves Photostats for long-term use and storage. A thin application stabilizes both sides of the sheet.

The Result

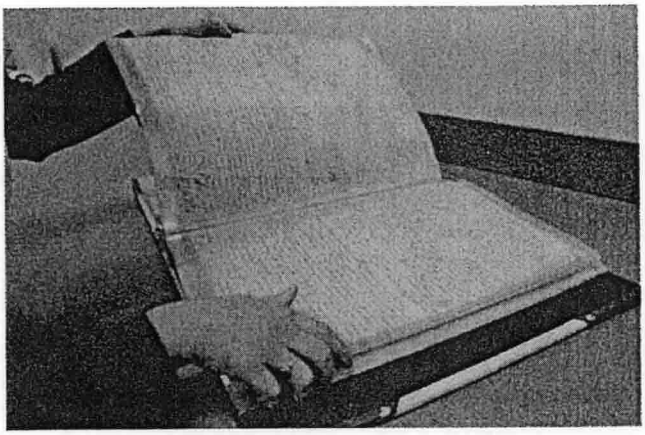
This protective coating will not oxidize or cause the sheets to yellow . It contains ultraviolet (UV) absorbers that block 99% of ultraviolet light and Hindered Amine Light Stabilizers (HALS). It also contains waterproof properties. After application, negative Photostats better resist abrasion and humidity. These properties are vital to protecting archival negative Photostat records during public use.

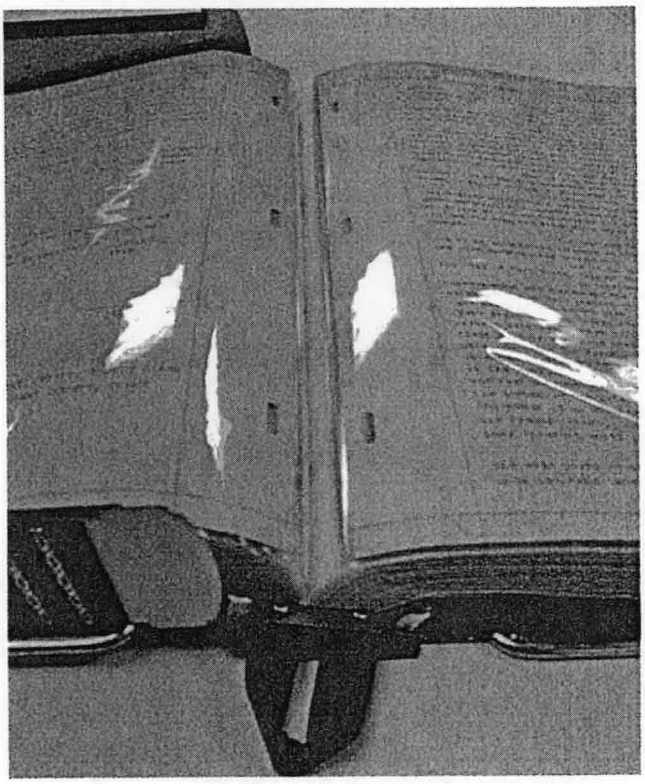
ENCAPSULATION

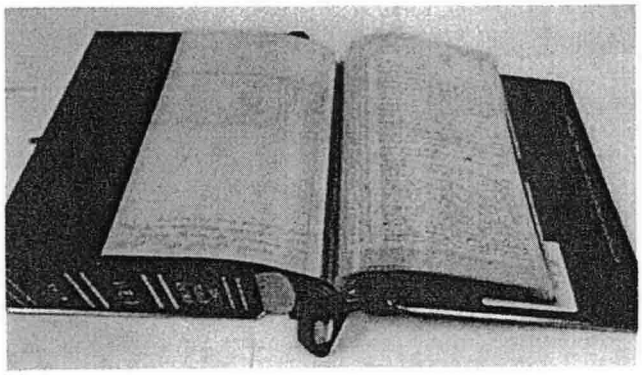
In archival encapsulation, the document floats freely. It is not adhered or heat set. Kofile uses SKC SH725 PET polyester. Polyester or Polyethylene Terephthalate (PET) is the most inert, rigid, dimensionally stable (*dimstab*), and strongest plastic film. Otherwise known as Mylar® Type D or Melinex® 516, it is crystal clear, smooth, and odorless. It will not distort or melt in case of fire.

Each sheet is encapsulated in a 2 *mil* or 3 *mil* patented polyester pocket: *Lay Flat Archival Polyester Pocket*™ , US Patent #7,943,220 B1, 5/17/2011. This pocket is welded closed on three sides, and the binding process statically seals the fourth side. With this feature, the Pocket would not need to be cut to access the original sheet. A Reemay® strip or spunbond polyester at the binding edge offsets the document's thickness and seals out atmospheric pollutants while allowing off-gassing.

These developments allow for a flat book block. The inherent static cling of polyester provides physical support and protection during use. The binding is reinforced for added strength and usability. Available in custom sizes, the Pocket dimensions will match the 'book block' dimensions with a 1½" or 1¼" binding margin.







ARCHIVAL RECORDER BINDERS

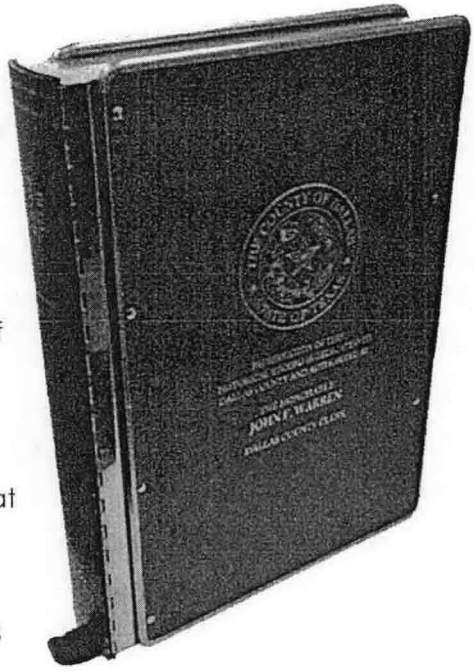
Pockets are punched and volumes are hand-cased in books of 325 pages or less. This may result in *splitting books with large capacities into two volumes due to the additional weight of the Mylar*. Kofile manufactures binder components at 1/4" incremental capacities on a per-book basis. Kofile punches sheets to any hole specifications and repairs/replaces index tabs as necessary. Kofile can manufacture custom binder sizes, shapes, spines, colors, and lettering. Each binder features durable cover boards and spine to support the pages' weight. All materials, including the cover boards and adhesives, are acid free.

Title Stamping

Title stamping is reviewed and approved in advance. It will follow the same format/style of the originals or incorporate a custom dedications or seals. Tooling is 23-karat gold foil. If errors are identified, The client is notified to determine the correction. The client approves any changes.

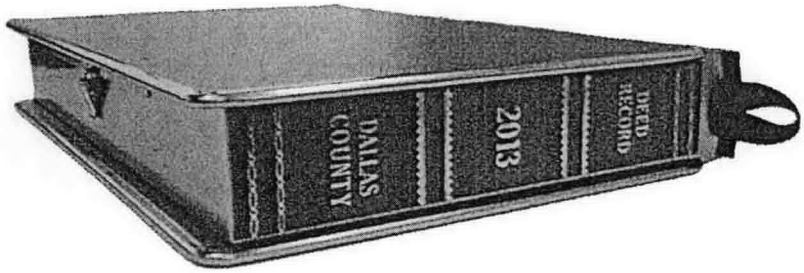
Proprietary Features—Disaster Safe County Binder

Kofile proposes its proprietary *Disaster Safe County Binder*™ (DSB) for these volumes (*see exampled to the immediate right and below*). This binder is only available from Kofile, and Kofile owns its patent.



The DSB provides unparalleled protection and storage for inactive records. Developed after Hurricane Katrina to address the devastation of the Orleans Parish archives, it protects sheets from water, fire, and physical disruption. The primary problem in 2005 was 100% relative humidity. With weeks of no power, mold was rampant. A hard lesson, the DSB addresses what went wrong in that disaster.

Also, a post binder, the DSB enables the encapsulated sheets to hang from the binder's posts—much like a hanging vertical plat cabinet. This allows collections to return in a smaller storage footprint with *4Post*™ Shelving.



The DSB provides functionality and access ease while offering the highest rate of return on the client's investment. It is a portable vault for housing records of enduring value. It provides progressive protection from exposure to fire, water, Relative Humidity (RH), atmospheric pollutants, ultraviolet (UV) light, impact, and drops. The DSB also features a lifetime warranty against rust.

Kofile matches the existing binder collection by manufacturing custom sizes, shapes, spines, colors, and lettering. The DSBs are available in the following colors in Imitation Leather (white is also available, but requires black lettering instead of gold foil). Spines are available in genuine or imitation leather. *For hubs, the spine must be genuine leather (which introduces a non-archival component).*

RED BLACK NAVY BLUE ROYAL BLUE GREEN BURGUNDY MAROON BROWN

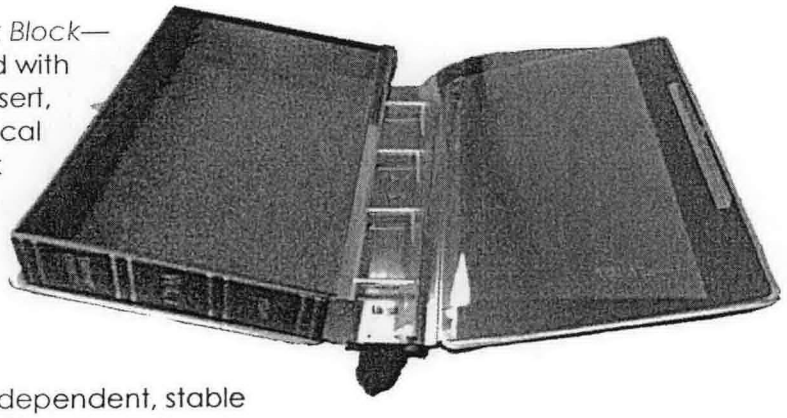
Kofile manufactures binder components on a per-book basis, sized to 1/4" incremental capacities. Each binder features durable cover boards and a spine to support the pages' weight. Any product that fails to operate properly or maintain its original integrity is replaced at no cost to the County.

Materials, including cover boards, are acid-free. Adhesives are based on internally plasticized copolymers of vinyl acetate with ethylene, deputy male ate, or other suitable monomers, with a vinyl acetate monomer content of no more than 1%, and a minimum 6 pH.

Other DSB Features:

Stainless Steel—The metal mechanism and book block apron are constructed of stable, corrosion-proof 316 stainless steel, which does not emit harmful gaseous pollutants like cold roll steel.

Support to the Book Block—The DSB is equipped with a Polyester Foam Insert, which ensures physical support to the book block and allows library-style storage.



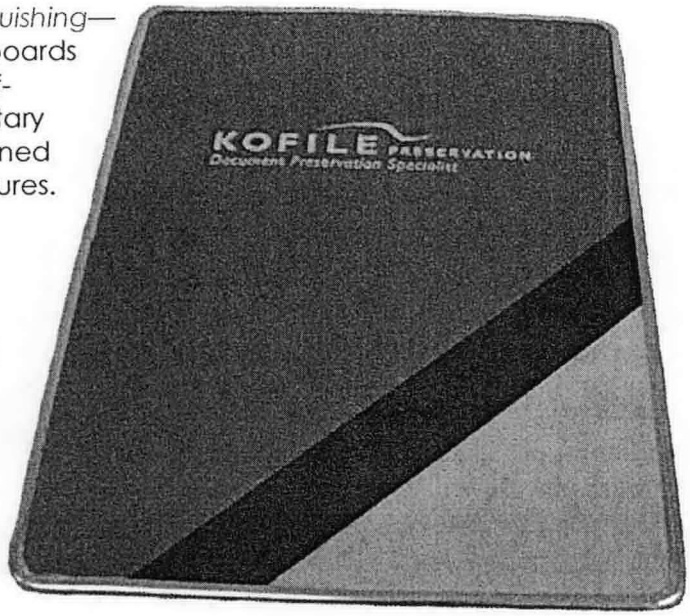
Microclimate—The DSB creates a *Microclimate*, an independent, stable environment separating sheets from the External atmosphere.

Security Lock—A security lock hinge protects from sheet theft. This lock secures the binder during handling or in case of a drop, as the binder will not open nor release its contents.

Nonflammable & Self-Extinguishing—With nonflammable cover boards and materials, the DSB is self-extinguishing. These proprietary features, protect the contained pages in extreme temperatures.

The DSB *exceeds* NFPA Fire Codes 1 & I, and Classification codes FMVSS 302, UL94 FLAME, and UL 746A IGNITION. In its 2nd generation model, upgrades include simplified access to the posts, and refined mechanisms and construction.

NFPA® 232 Standard for the Protection of Records, ~6.12.2, states "All records shall be stored in fully enclosed noncombustible containers" (2017 Edition).



A cut-away of the DSB components—layers include: a metal rim, Imitation Leather (red), fire resistant material (black), a self extinguishing board, and a metal rim.

The Use of Non-Archival Binders

New binders stabilize documents and impede deterioration. *This will save Brown County valuable storage space and will require little maintenance for decades.* Most existing binders are composed of non-archival materials with non-archival adhesives. These binders deteriorate and emit acidic elements—which damage documents.

Kofile does not recommend the use of polystyrene (PS) binders. In the presence of heat they are highly flammable and outgas toxic Hydrochloric acid fumes. PS binders also have poor chemical resistance, especially to organics, and are photodegradable (susceptible to UV degradation).

Polystyrene "**emits toxic fumes under fire conditions.** Under fire conditions, material may decompose to form flammable and/or explosive mixture in air."

Material Safety Data Sheet. Sigma-Aldrich Co.

" ...**cannot be considered archival** because the core is polystyrene, or some variant of polystyrene, and this material naturally **decomposes** over a long period of time and is said to **give off acid vapors.**"

Illustrator Draftsman-DM, Equipment Addendum. NETPDTC AEDC.

"Plastics vary greatly in chemical stability and should be used with caution. Chemically unstable **plastics produce by-products that accelerate the breakdown of paper** as they deteriorate. Others contain volatile plasticizers that can cause items in contact with them to stick to their surface and **media to bleed.**"

Dianne van der Reyden. "Paper Documents." *Storage of Natural History Collections: A Preventive Conservation Approach*. Rose, Hawks, & Genoways, eds. Iowa City. SPNHC. 1995, 333.

"Plastics should be inert, chemically stable, and free of chlorinated plasticizers. Use plastic items such as polyester, polyethylene, and triacetate...Records shall be stored in fully enclosed noncombustible containers."

Standard for the Protection of Records. National Fire Protection Association (NFPA) 232. 2007.

"Three types of plastic meet preservation standards: polypropylene, polyester, and polyethylene."

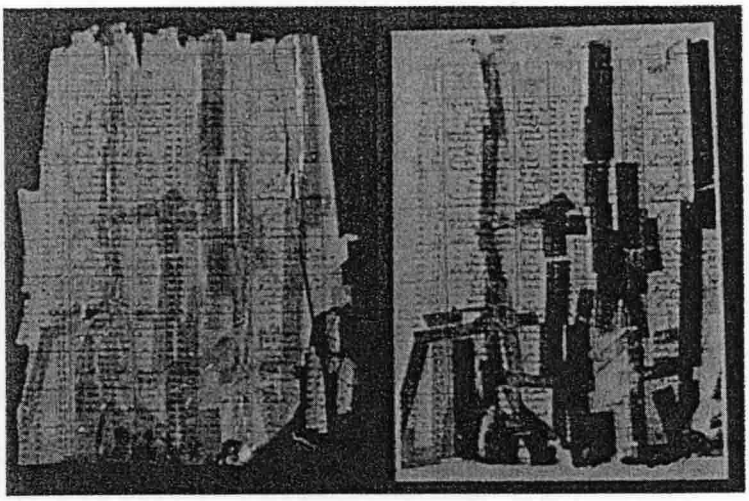
Nancy C. Schrock & Gisela Noak. *Archival Storage of Paper*. Syracuse, NY: Gaylord Bros. 1997, 2.

"A year's exposure to desert sunshine is sufficient to halve [polystyrene's] molecular weight, with an attendant **loss of strength**..."

Jeremy Burgess, Michael Marten, & Rosemary Taylor. *Under the Microscope: a Hidden World Revealed.* Edition: reprint, illustrated. CUP Archive. 1990.

ARCHIVAL DIGITIZATION

Imaging a document and digitizing a collection creates an electronic representation of the original archival record. This process is not meant to replace the archival record, but to aid in its preservation. The image serves as a reference tool and is a back-up if the original is damaged or destroyed.



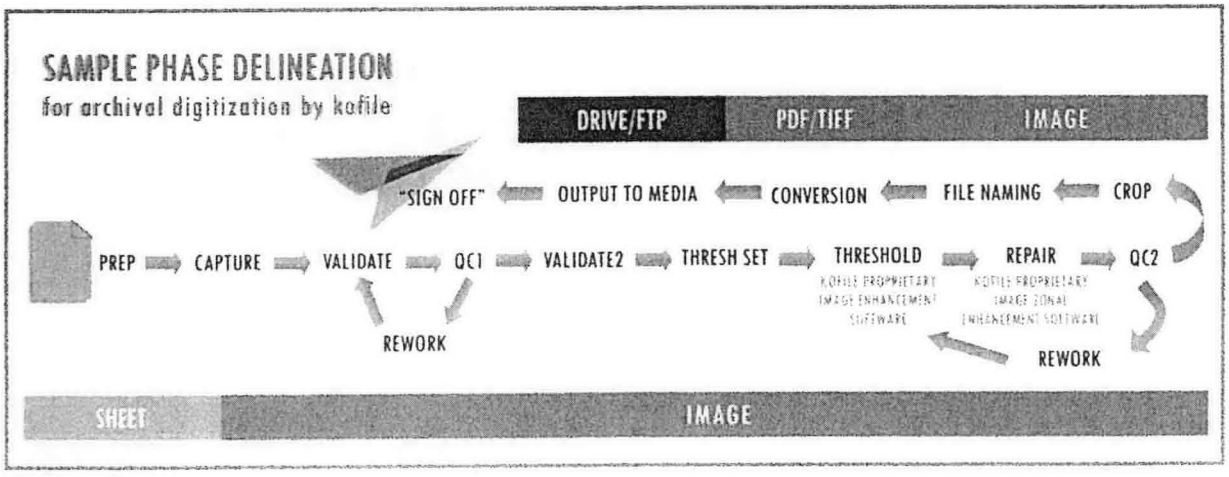
What would this historical record page look like if imaged "AS IS?" *The tape may compromise legibility of the image.*

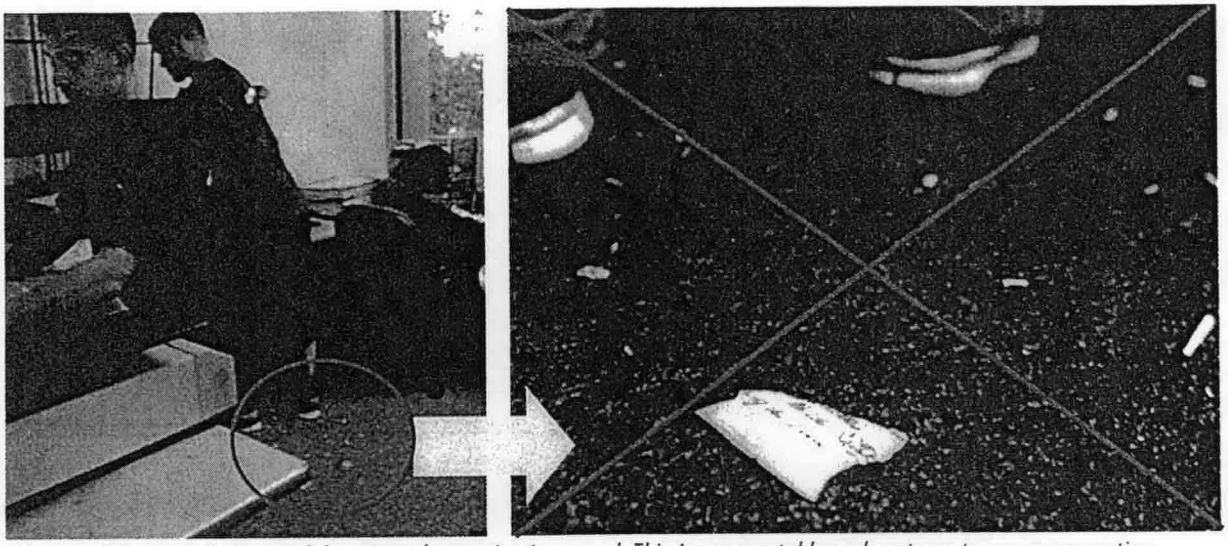
Kofile does not subscribe to the "*scan it and forget it*" philosophy. Many projects involve re-imaging what low-bid vendors have already imaged. Kofile invests in the best hardware and software. With Kofile, images are the highest quality and are free of distortion and loss of information due to image capture.

Materials are addressed according to condition and fold endurance without blind, automatic scanner feeds. Technicians are trained to handle fragile and historical documents. Kofile defaults to U.S. National Archives and Records Administration (NARA) technical guidelines for digitization. Upon request, Kofile stores an electronic security back up of all images in case of loss, damage, or destruction by fire or natural disaster.

Imaging Overview

Images are captured at a minimum of 300 dpi at 256 bi-tonal or gray levels. This ensures the optimum resolution and highest image quality for documents with poor contrast and illegibility. Images accumulate as Group IV bi-tonal images in a standard TIFF or PDF format. Images are optimized and scaled for system output. Gray-scale scanning techniques ensure the optimum resolution of each page. Effectiveness and minimum legibility of the scanning process is verified through rigorous and systematic quality control.





The article implies that partial document destruction is normal. This is unacceptable and contrary to any preservation standard. Kofile has the experience and expertise to handle fragile documents and address the physical preservation of the source document.

Source: Higgins, Jessie. "Recorder's Office Preserving Oldest County Records by Digitizing Them: Some Century-Old Pages Crumble When Touched." Evansville Courier & Press, August 21, 2013.

Image Capture

Domain specific knowledge is necessary. A vendor that does not understand permanent asset collections may address Brown County's files as disposable. Operators observe each page during capture. For faint or illegible pages, the operator marks the page, readjusts the scanner, and employs contrast tools. If unsuccessful, the operator inserts a review form for the quality assurance team to assess. The page is treated with a "Best Possible Image Indicator" or further enhancements.

A Kofile Technician capturing historical pages on a flat bed scanner.

Image Processing and Enhancement

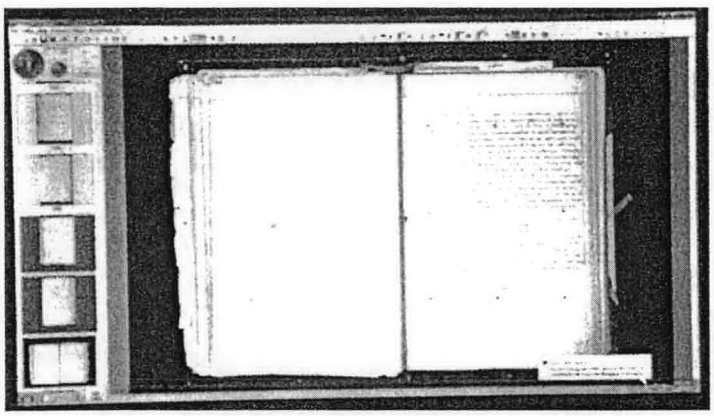
IMAGE PERFECT, Kofile's proprietary software, ensures optimum image quality. When documents vary in size and density, this custom programming ensures image uniformity. It provides proprietary algorithms to achieve high image quality. The utilization of algorithms is critical for capturing different densities and quality levels in a collection. Among the many common problems the software automatically addresses include at capture:

- White-on-white images
- Synchronizing images from different scanners
- Floating page cropping & segmentation
- Rotating & de-skewing images
- Tone correction
- Resolution adjustments
- Metadata Normalization

This proprietary software is a digital SLR-based system. Kofile utilizes the Microsoft® SQL database as the underpinning for the production systems. The software also allows operators to build and edit image processing scripts interactively. The image processing scripts can be saved for batch processing. It also has progress tracking capabilities and can identify exceptions. Supervisors manage and correct problems quickly and efficiently.

IMAGE PERFECT uses custom image clean up and enhancements such as deskew, despeckle, character repair, and zonal processing. Kofile maintains 100% document integrity and image control with exclusive Image Locking capabilities. The processing procedures will not allow for information from rescanned pages to cut and paste accidentally into the incorrect page.

During the image repair process, *IMAGE PERFECT* allows repair of the currently displayed image without rescanning additional images, which could compromise image integrity. Images are zonal enhanced to improve readability.



Quality Targets permit operators to view image quality at the time of the scan. Images, even with scanning on different devices, are "normalized" as if they were from the same scanner. Rather than using ad-hoc algorithms and tricks, this software measures image quality and propagates this data through the imaging chain. The Quality Targets establish the baseline digital capture quality of the scanner at the time of scanning.

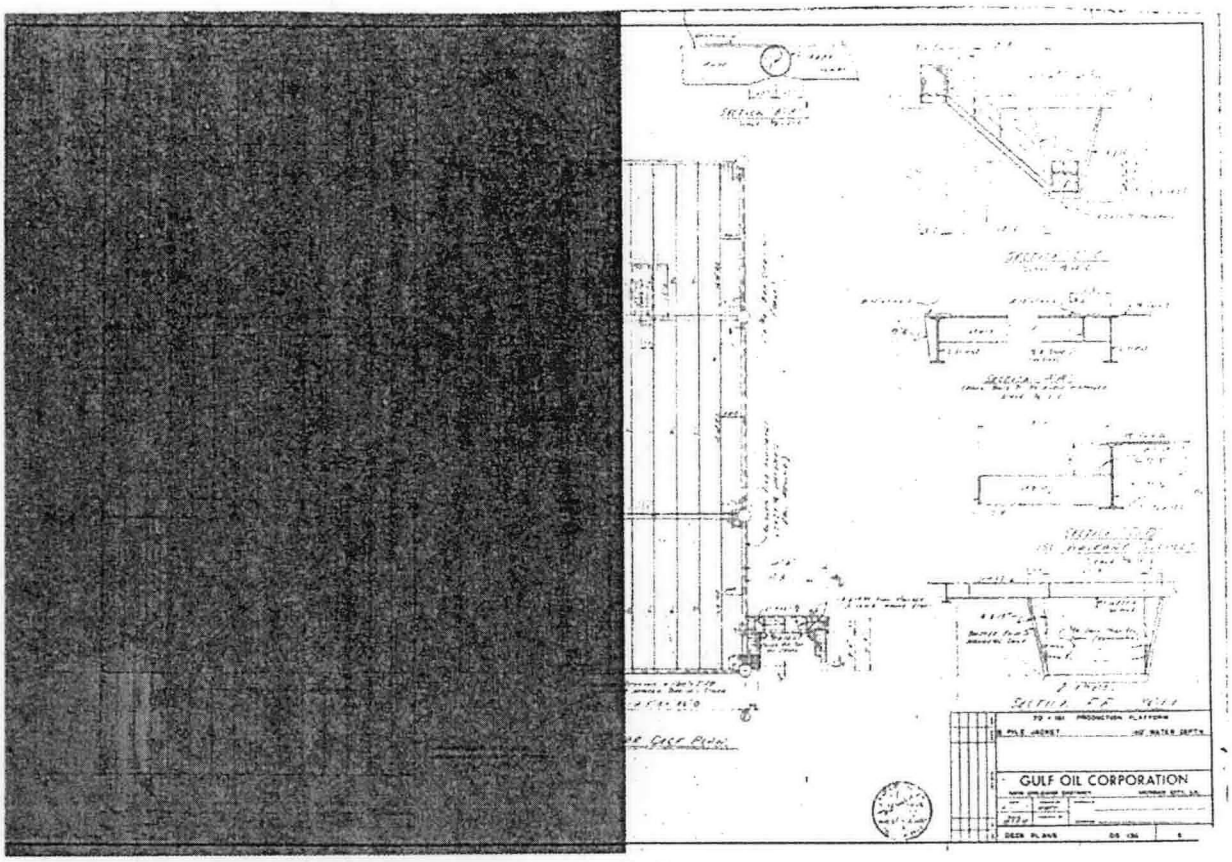
Quality Targets (see pictured) establish the baseline digital capture quality of the scanner during scanning. Therefore, Kofile can measure the digitization physics at the time of capture. The *Quality Target* serves as the foundation for Kofile's quality assurance analysis. *IMAGE PERFECT* measures each image at a minimum for the following attributes:

- Target dpi
- Target Tone scale and correction
- Color Management
- Brightness/Contrast Correction
- Gamma Adjustment
- White Balancing
- Page Orientation
- Exposure uniformity
- Color reproduction data

Annotations are supported to allow the addition of Book, Name, Volume, and Page on the image. Image quality metadata is captured as part of the image header along with a secured digital signature that certifies the fidelity and integrity of every image scanned.

Quality Control (QC)

Our Quality Control (QC) process ensures that all images are certified. **Each and every image is sight checked during QC**. Each page is checked to ensure there are no missing pages, double feeds, or "A" pages, which may have been added to the original book. Every image is inspected before delivery to the customer. The District Clerk can receive an image log noting the steps employed.



Examples of imaging before (L) and after (R) image cleanup and enhancements.

Kofile's quality assurance involves three major thresholds for 100% review inspection: during preparation, scanning, and a post-scanning review. Then, work undergoes a statistical, random, batch-based review of 8% of the inventory before delivery. The three checkpoints for 100% review and the batch-based 8% review establish the control levels for inspection of the finished product.

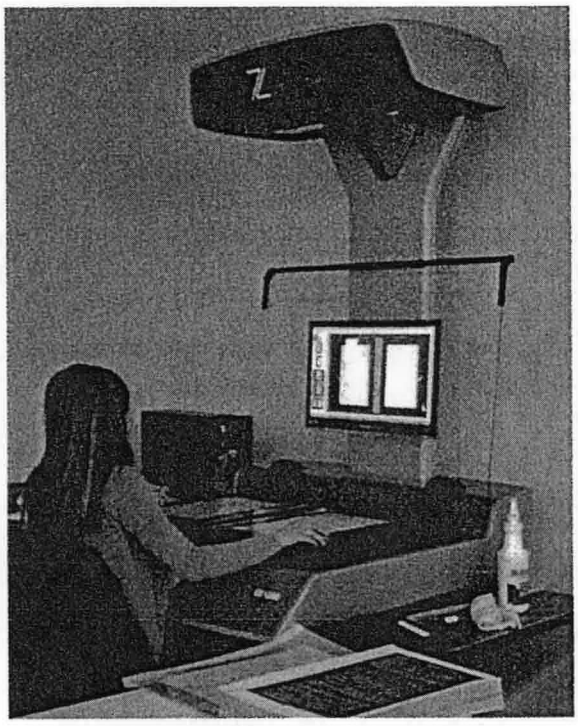
Advanced Equipment

Kofile can scan mixed-sized and large-format documents. Kofile employs a range of scanners to tailor imaging services to the document. Equipment includes technical scanning equipment by Fujitsu, Kodak, WideTEK, Scan Optics, and Contex. All scanners employ page detection to adjust for varying sizes of paper and, more importantly, thicknesses to reduce "pull-throughs" on thin papers following thick bond.

Fragile documents are imaged by hand and not fed through an automated Document feeder. Document fragility and stability determine which scanning device is employed. This selection process also enables historical documents to be addressed by their various densities. Fragile documents are identified and flagged for exception handling and placement in Mylar, as necessary.

Zeutschel

This is an overhead tabletop scanner for books, newspapers, and Large Format Documents (i.e. certificates, drawings, maps). It is a High End Scanner for maximum performance and perfect images.



The Zeutschel provides correction and automatic document detection with integrated color management, contrast improvement, image rotation, de-speckle, de-skewing, cropping, masking, and scanning with dynamic threshold, etc. Advantages include:

- High scan speed
- ROI-scan feature (limitation of scan area)
- high productivity
- best results with automatic color management
- Perfect Book – 3D scan technology for perfect book curve
- no UV/IR radiation
- low exposure to light (illumination will only be activated when scanning)
- no reflections with high-gloss originals
- excellent cost-performance ratio

WideTEK

These wide-format duplex scanners digitize two-sided printed documents up to 36" in width. The scanner needs only 2.5 seconds to scan the front and back sides of a page in a single pass through the scanner at a resolution of 300 dpi. The document no longer needs to be flipped over and scanned again on the other side. This scanner ensures the best possible gentle document transport and digitizes historical and fragile documents without damage to the source document.

PROJECT EXECUTION

PERFORMANCE STANDARDS

As Benjamin Franklin commented on the fire-fighting practices of his day, "An ounce of prevention is worth a pound of cure." At Kofile, our conservators fight figurative fires daily. Our practices prevent recurrences of the many fires throughout history that have devastated communities and wiped out all trace of local and state government.

To ensure the longevity of these records, Kofile performs all restoration and conservation services in accordance with the Code of Ethics and Guidelines for Practice of the American Institute for Conservation of Historic and Artistic Works (AIC).

Our team provides realistic solutions, professional analysis, and innovative archival products to equip public records stewards with the information and resources needed to preserve collections.

Kofile's legacy is built on decades of experience with conservation, restoration, deacidification, encapsulation, binding, digitization, and microfilming.

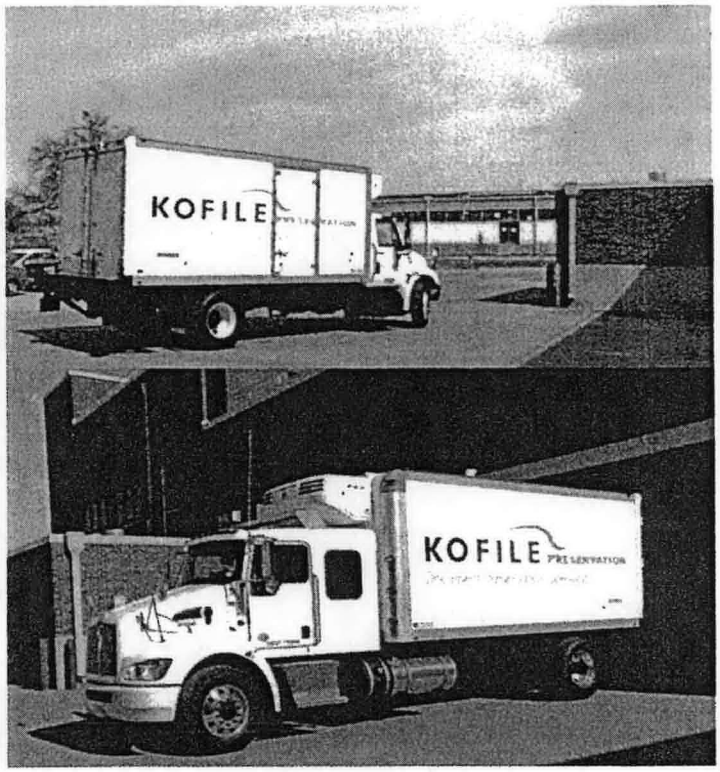
Kofile never utilizes any treatment, repair, or maintenance that is not 100% reversible. All work is designed to allow, insofar as possible, the subsequent removal of the additions. We do not attempt any treatment in which Kofile lacks experience. Records are carefully tested to measure compatibility before proceeding. Document integrity is essential.

Certain substrates, adhesives, and laminates are reversible, while many others are not. Upon encountering irreversible materials, staff promote the Document's welfare and may decide in favor of "non-intervention." This adheres to the AIC's *Code of Ethics & Guidelines of Practice*. "Non-intervention" may also apply to adhesives that require harsh chemicals to remove, or when adhesives or housing materials have absorbed or transferred ink. Some chemicals used to treat these issues leave residual chemicals. Over time, these chemicals could damage the Document. Other performance standards include:

- Collections are not mass diagnosed, instead Kofile addresses each separate volume or document. One at a time.
- At Kofile, documents and media are priceless and are treated as such. Kofile never loses text or data.
- Kofile provides continuous security, fire suppression, and environmental controls that manage temperature, Relative Humidity (RH), and ultraviolet (UV) light.
- All materials commonly used in treatments are itemized on a Treatment Report.
- Inscriptions and important attachments are preserved.

SERVICE DELIVERY

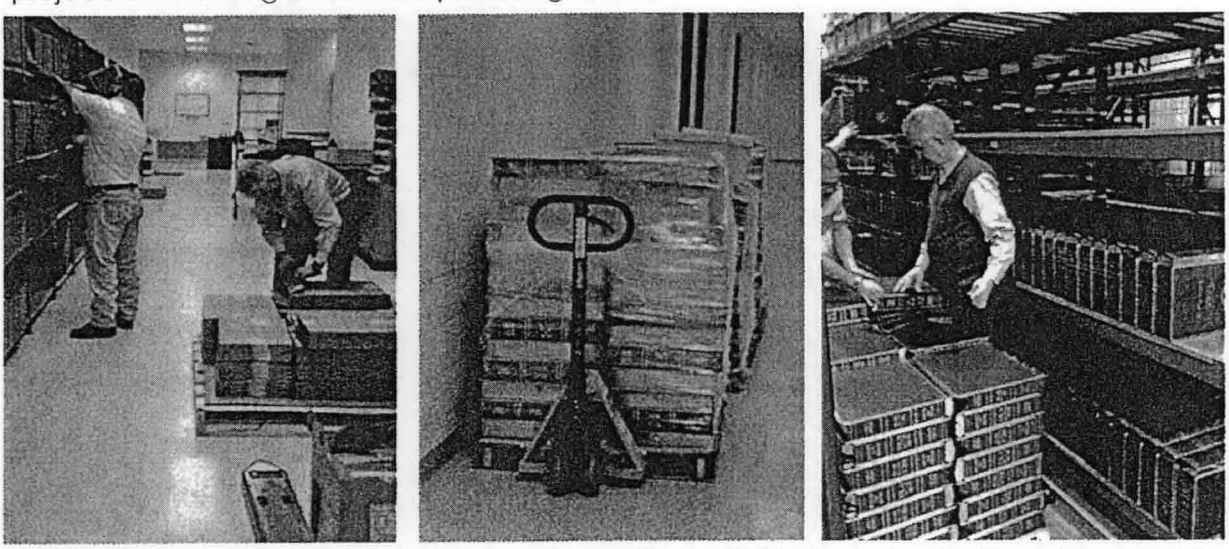
Kofile takes pride in being a prompt and efficient company. Kofile provides an 'off the shelf and on the shelf' service. The Kofile team is experienced working with public records. Records are picked up directly by dedicated Kofile personnel. Kofile's personnel pack and prepare items for transportation, as well as inventory and receipt records at the time of pickup and delivery.



Kofile differs from other vendors because it has invested in its own transport vehicles and do not have to rely on third party transportation services. This capability enables Kofile to expedite projects that would otherwise lag due to dependence on third party freight limitations and costs.

The vehicle travels directly to the Kofile facility for unloading in a direct point-to-point transit.

Kofile transport personnel maintain a Class B CDL with an air brake endorsement. The Kofile Transport Coordinator has eight years of experience transporting and coordinating projects concerning records for public agencies.



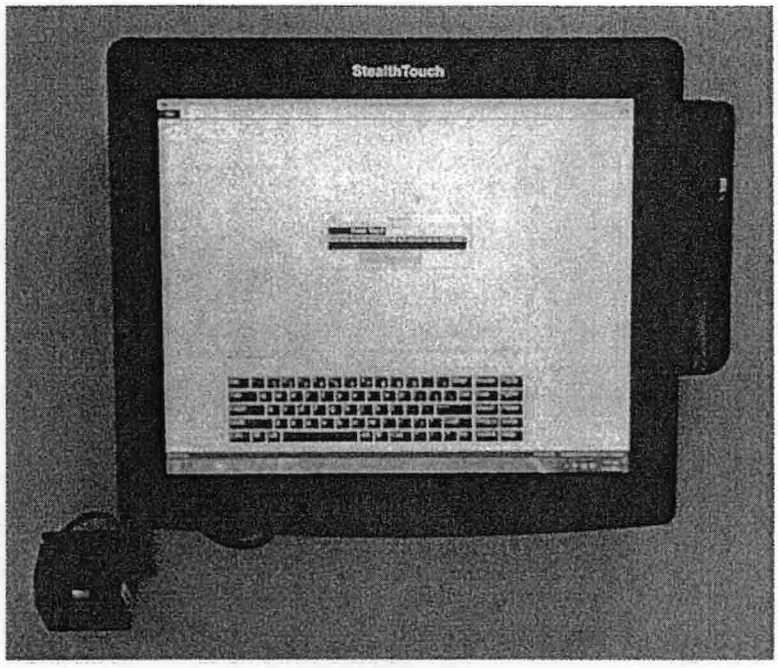
Kofile representatives unpacking new binders (above left), a pallet of stuffed binders prepped for delivery (above middle), and unpacking preserved records at the Tarrant County Clerk's Records Facility (above right).

The Brown County records are transported in a secure Kofile vehicle. The cargo is transferred in a climate-controlled environment that is regulated to prescribed archival standards. The Kofile vehicle boasts a 4000 lb. lift gate. air suspension, and air brakes. This truck is also equipped with several extra security features, including back-up cameras and an anti-lock braking system.

Documents are unloaded directly into the Kofile building through a dock. They are never left in a vulnerable location or in a location that is accessible to unauthorized persons. A coordinated staff effort at all levels maintains security and chain of custody for the documents.

PRODUCTION TRACKING SYSTEM (PTS)

An integral part of project management relates to the cataloguing of incoming files and tracking through each stage. Kofile uses Production Tracking System (PTS) capability to enhance project management by producing unique IDs (bar codes) for each control unit. PTS provides the tools necessary to establish positive control over the project and manage the inventory of images, boxes, and books on an ongoing basis. Kofile is able to track the individual status of each document traveling through our system and is used further for audit tracking purposes for each employee.



A PTS kiosk at a room entrance to scan in and out an volume via its individual barcode.

Within each step, Kofile can track the exact person, assigned batch, date, time, number of documents, image counts per document, stage of performance, and status of the batch. This log allows Kofile to track every event encountered in the document lifecycle and "push" every record to our permanent logs for storage and retrieval at future dates.

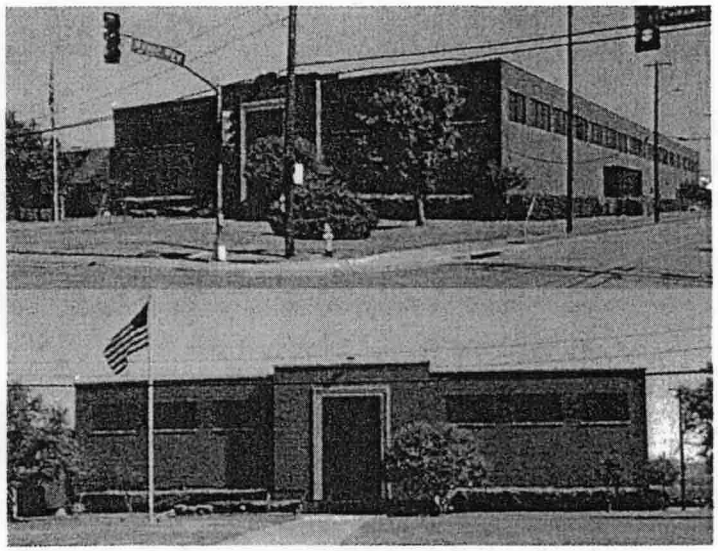
ACCESSIBILITY OF RECORDS

Records held at Kofile are viewed as private and confidential and are treated as such. Brown County District Clerk's Office is guaranteed access to records via toll-free fax or email at our expense. Upon receipt of a 'Hot Shot' (a records request), Kofile will flag the requested record and verify inventory control, pull supporting paperwork, and email/fax a response to the approved requester or alternate.

The turnaround time for a Hot Shot will meet or exceed the District Clerk's requirements. Requests received during regular working hours (8:00 A.M. CST – 5:00 P.M. CST, Monday – Friday) are processed the same day—often within an hour or less of receipt.

LOCATION OF WORK

Brown County's records will be preserved and digitized at the Kofile facility located at 6300 Cedar Springs Road, Dallas, TX 75235 (see pictured to the right). This facility offers the superior protection during treatment.



Brown County is welcome to inspect any Kofile facility—with or without notice.

This is a permanent facility employing full-time, permanent employees since July 2011. This is 150,000 sq. ft. facility with three stories (119,000 sq. ft. used for production and executive offices).

Kofile possesses a history of responsibility, and it has invested in a facility with superior security to mitigate loss and destruction before it occurs. Kofile's investment in security is apparent in facility construction and location, expert staff, transport services, climate control, insurance coverage, and strong financial backing.

Disaster Resistant Building

The Kofile facility is a fire-resistant brick and concrete building with structural steel support members, fire-rated walls, ceiling, and flooring. The facility is located above flood plains and in an area unlikely to suffer cataclysmic natural disaster. The Kofile facility is also F5 Tornado Resistant according to an architectural assessment preformed by Tanner Consulting, 2010.

Facility Security Measures

The Kofile facility is F5 Tornado Resistant according to an architectural assessment preformed by Tanner Consulting, 2010 (*provided upon request).*

A motion security system protects the entire building, and there are 52 security cameras. There are not cameras inside the vaults, but each has a camera at its door. In addition, each book is given a barcode that is scanned each time the book is checked out or back into the vault.

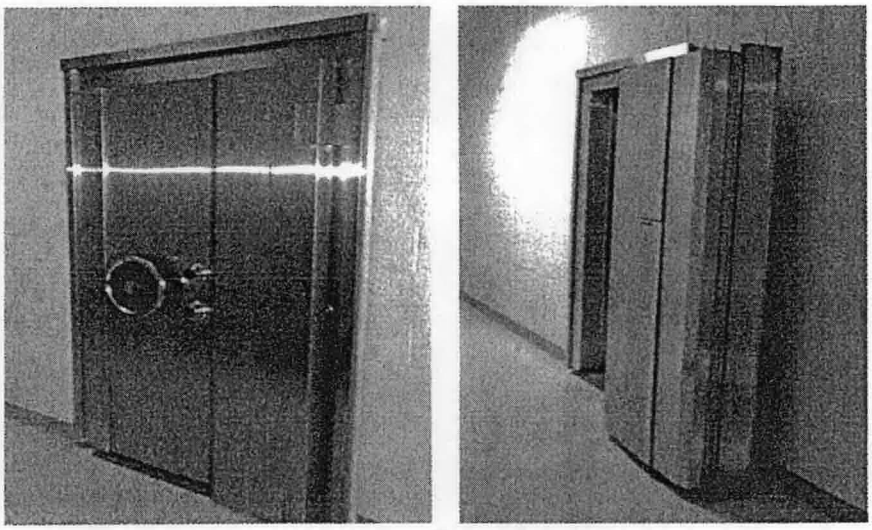
In addition to the Motion Detector Security System, Kofile follows rigorous end-of-day closing and lock-down inspection protocol. There are internal and external monitored cameras and motion sensors. The Kofile facility is secured at all times.

The building is a "locked down" facility. No one is allowed in unless employed or are

escorted by management. All access points are monitored, and a security fence limits facility access. The gate is open during business hours, but the premises are locked and only accessible after hours with a security card. Visitors are buzzed in after confirmation of identity via a video and voice system. Staff are positioned at department access points for an extra level of security.

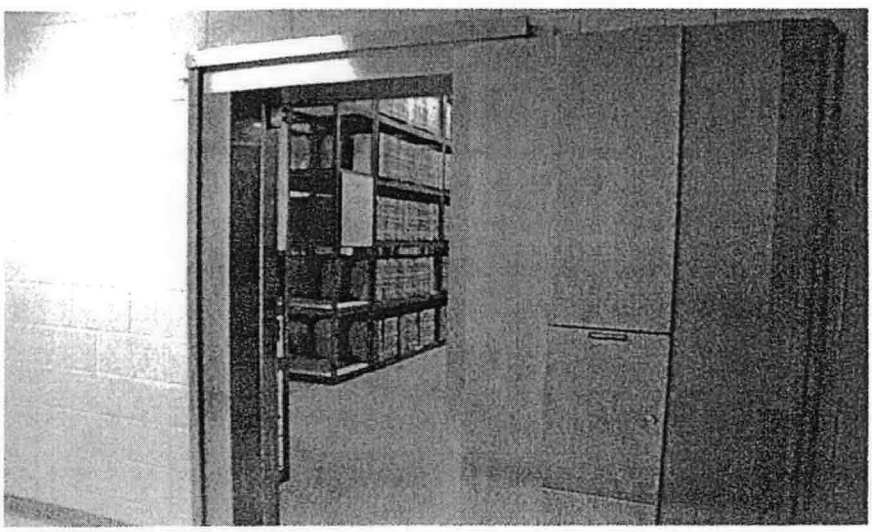
Regulated Facility Environment
There are 24-hour temperature and Relative Humidity (RH) controls throughout the building. Kofile has multiple independent HVAC systems with programmable thermostats. Each vault has its own, independent HVAC. There are two vaults for book/paper, and one vault for Micrographics. The Book/Paper Vault's environmental controls are set to adhere to the referenced TSLAC standards. These standards are not entirely applicable to the Micrographics vault.

The laboratories are centrally located on the second story of the building. Exposure to ultraviolet (UV) light is minimized. Kofile does not have any issues with pest control. The building is regularly maintained. Food and drinks are not permitted in the conservation areas by anyone or for any reason. Garbage is removed daily.

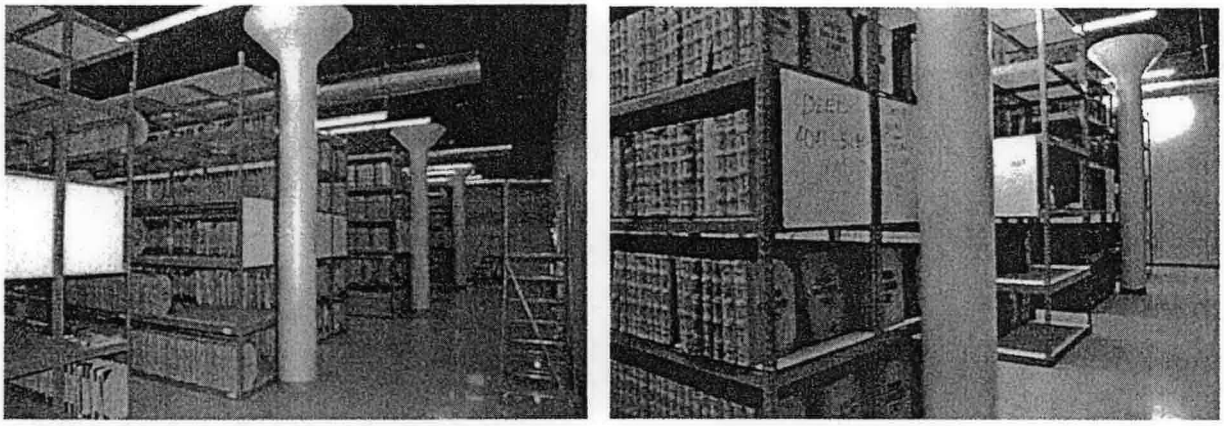


The Level 5 door of the Long-Term Storage Vault (same model used for each vault).

Vaults
The Dallas facility has three vaults in its facility. One is for media (microfilm), one for works in progress (books/ paper), and the third is for long-term storage (book/paper). Each vault is secured with Level 5 vault doors with a 4-Hour UL Rating of at least 350° F. Each vault has its own independent HVAC system, monitors for humidity and temperature, and controls for airborne particulates (monitored by analog methods). Kofile actively monitors for micro-organic growth.



The 'Works in Progress' Vault.

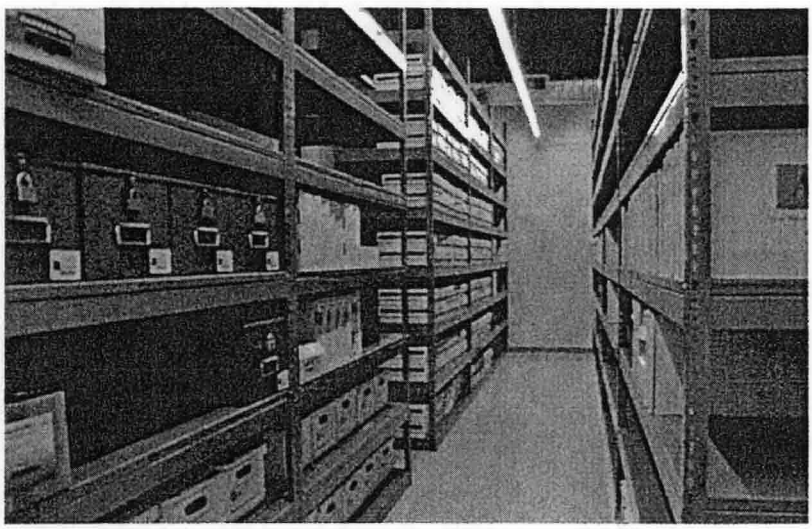


The Long-Term Storage Vault.

Daily protocol requires that records removed from the vault for work be in the custody of a technician at all times. When records are not undergoing treatment, they are immediately returned to the vault area. Likewise, if documents require pressing or other mechanical processes beyond normal working hours, work continues in the vault.

Media Vault

Kofile provides storage services for microfilm, microfiche, and other types of data in its Media Vault. Kofile randomly performs spot tests to safeguard against certain contaminations, such as Vinegar Syndrome, mold, mildew, and/or Redox on microfilm. Acetate Base Film is separated from Polyester Base Film and is stored in separate storage boxes to help eliminate film contamination, as Eastman Park Micrographics, Inc. (EPM) recommends.



The 'Media Vault.'

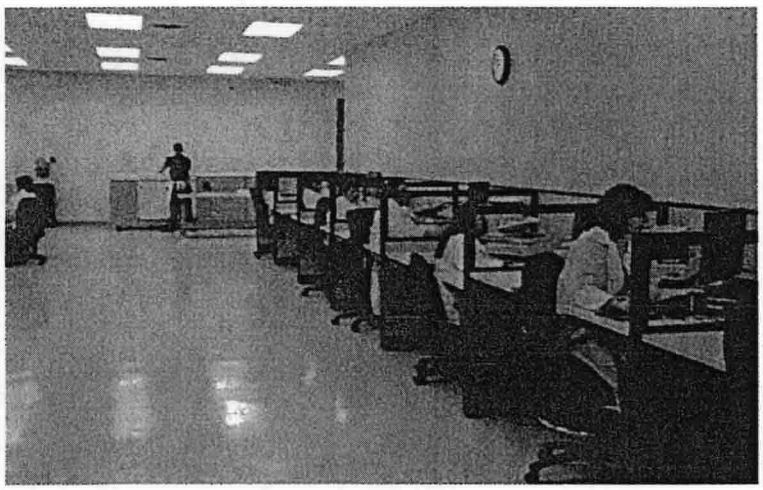
Kofile can retrieve any part of the microfilm/data and transmit the requested microfilm/ data to a customer electronically or through other means. The client owns all of the stored microfilm/data, and Kofile will not sell or distribute the microfilm/data in any way.

This vault is regulated by an independent HVAC system that monitors humidity, temperature, and controls airborne particulate (monitored by analog methods). Per professional standards, for all film types the recommended relative humidity (RH) rate should never exceed 50% RH year-round. Kofile's current HVAC is an isolated, dual-redundant system. In accordance with the standards, it maintains less than 30% RH and a constant temperature below 60°F. A limit of 40% RH is suggested for silver-gelatin films to curtail the possibility of microscopic blemishes from silver oxidation. Our current storage

environment exceeds the ANSI/NAPM IT9.11-1993 and ANSI/PIMA IT9.2-1998 specifications for conditions for archival storage of film.

Temperature and humidity are monitored in real time by Kofile technicians to make sure all systems are operating properly. Analog monitoring machines are installed in the vault areas as a backup in case of a digital monitoring failure or power outage. Interior vault areas are HEPA-vacuum cleaned weekly to minimize dust settling as well as Stage 3 filters on the air intakes of the HVAC system. All storage units are of steel construction with the appropriate powder-coated finish to eliminate off-gassing. Kofile annually performs spot tests to safeguard against contagious contaminations, such as Vinegar Syndrome, mold, mildew, and/or Redox. Acetate Base Film is separated from Polyester Base Film and stored in separate storage boxes as recommended by EPM to eliminate contamination.

Technological Security Measures
Our operator terminals are configured to ensure that no data can leave the facility. Any employee who works on a project is issued a username and password to access images. Rights are assigned to individual images as "read only." Only approved employees have the passwords to change image permissions. Therefore, no one can delete or modify images without authorization. All activity of this nature is logged.



Kofile establishes positive control over each item. Inventory control is continuously maintained throughout each step of the conversion process. Kofile's SQL imaging database maintains a complete audit trail throughout each step. Kofile has managed a large number of projects and have not lost any media or source files. Irreplaceable roll film, aperture cards, cartridges, paper files, charts, maps, and microfiche are all handled in this manner, without loss.

Kofile's server architectures allow redundancy of data operations across multiple locations. Data is regularly backed up to allow services to resume without interruption. Double redundancy is accomplished with further backups.

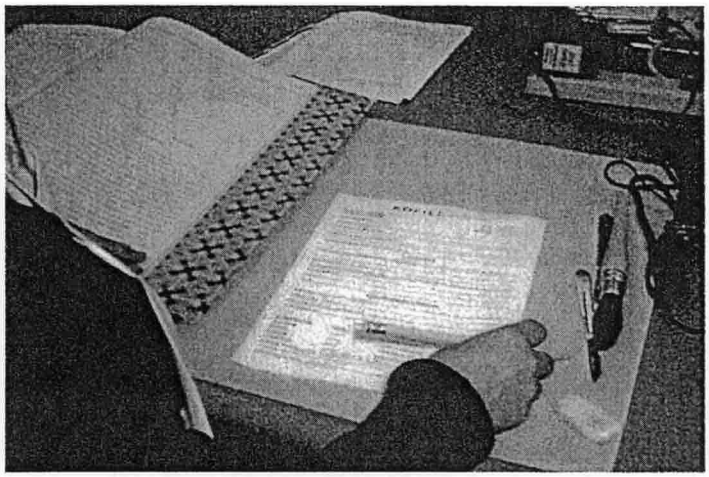
Scanned information is captured on local workstations and processed in batches. After capture, the batches are stored on centralized servers. Index servers are also backed up. After indexing, data is batch processed on central servers. These are backed up nightly, and the entire group of information is stored on archive servers. These data sets are moved to tape with multiple copies maintained offsite and within the vault noted above. A backup implementation and rotation schedule is provided upon request.

PROJECT TIMELINE

Preservation projects are unique in that the work determines the schedule, response times, and completion date. Each job is individual and unique. Kofile will meet whatever reasonable timeline the Brown County District Clerk requires and start the project upon award and execution of contract. The condition of the record determines how quickly it moves through the preservation process. Usually, older records suffer from extreme deterioration and require more attention. As the collection is processed in controlled batches and the age of the records decreases, production rate increases.

SAMPLE PRESERVATION PROJECT TIMETABLE FOR A BATCH OF BOOKS		
WEEK	PROJECT PHASE	COMMENTS
1	COMMENCEMENT & RECORDS TRANSPORT	Project Manager meets with Brown County District Clerk's staff. Records are inventoried. Records are delivered to the Kofile facility in Dallas, TX.
1	ARRIVAL	Items are unpacked and inventoried against the previous inventory. Before any treatments are undertaken, each item is evaluated. An information log is generated for each item. Titles are verified; items are identified with job numbers; and a stamping sheet is produced. The stamping sheet is sent to the District Clerk for verification, if required.
1—2	PREP	Write & distribute job instructions. Order custom materials such as binders upon approval of stamping sheet. Each stage of conservation is documented. The treatment log always accompanies each item.
2—4	CLEANING & DEACIDIFICATION	Folio surface cleaning. Removal of adhesives and repairs. All solvents and adhesives are acid free and easily reversible. Individual sheets are deacidified, as appropriate.
4—7	REPAIR & RESTORE	Mending with appropriate methods, such as the application of Japanese tissues. Encapsulate sheets, if required.
8—10	IMAGING	Document preparation, batching, and scanning, while adhering to strict quality control policies.
8—12	BINDER ASSEMBLY	Depending on the chosen housing, the designated books are bound. Binding may include rounding, backing, cover assembly, gold stamping and tooling, cutting of boards and leather, lining, and casing-in and pressing.
12—14	QUALITY CONTROL	Collection undergoes final quality check. Treatment reports are finalized and returned with the collection.
14—16	RETURN	The collection is boxed and delivered to Brown County. Other project requirements are addressed as appropriate.

QUALITY ASSURANCE PLAN



1. Work is accompanied by a receipt identifying the items, quantity, titles, date, other pertinent information. This receipt is signed by Brown County Disrtict Clerk's representatives.

2. Upon receipt, items are inspected and a Treatment Report/Log Sheet is prepared. Administrative staff will also complete a Work Order.

3. The Treatment Report and Work Order accompany the materials during the course of treatment, from inception to completion. The Treatment Report is updated and notated at each phase or as appropriate. A final Treatment Report is prepared upon completion, and included with the materials as a permanent record.

4. At each phase of treatment, the Lab Manager reviews the proposed work with the technician assigned to the current task. The Lab Manager ensures that the technician understands the scope, and is fully trained and experienced in the assigned task. The Lab Manager also ensures that the required materials and equipment are available, and properly functioning for the use of the assigned technician.

5. Also at each phase of treatment, the Lab Manager reviews the completed work. This includes physical inspection of the completed work, as well as review of Work Order instructions and Treatment Report entries. Additional work or correction is completed prior to the materials being processed for the next phase of treatment.

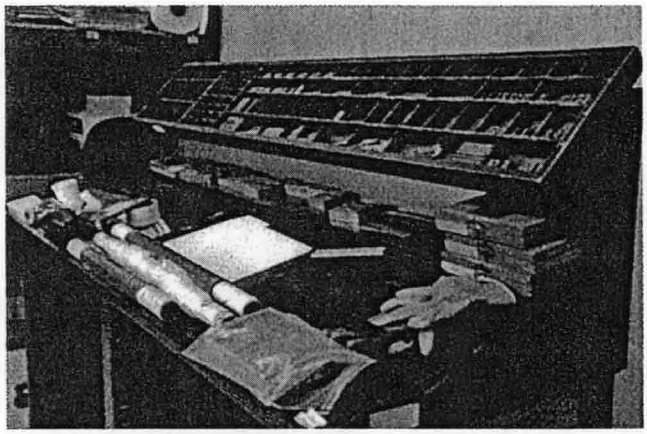
6. Periodically, staff review performance standards and Contract compliance. The Lab Manager will review each lot of work during treatment and after completion and quality assurance review.

7. After all preservation treatments have been carried out in compliance with the Work Order, a Quality Assurance Officer of Laboratory Manager grade or higher subjects the preserved materials to a comprehensive quality assurance review.

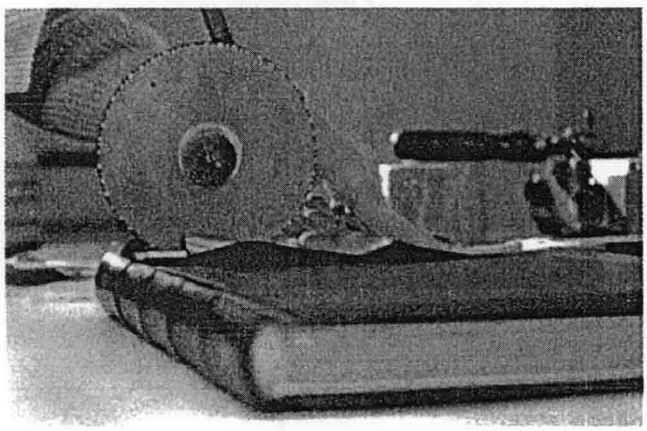
CONSERVATION EQUIPMENT & TOOLS

Each of Kofile's conservation laboratories is equipped with some of the most advanced and highest quality equipment in the industry. Due to the enduring nature of the bindery trade, many pieces of Kofile's equipment originated in the 19th and 20th centuries and still operate as originally intended—these machines were built to last. Still, each machine is carefully maintained and upgraded to a modern UL-Rating before use.

Each location has oversized soaking sinks and exhausted fume hoods. The multiple custom-built and hooded spray exhaust booths are used for deacidification. All are routed through an HVAC system for optimum performance.

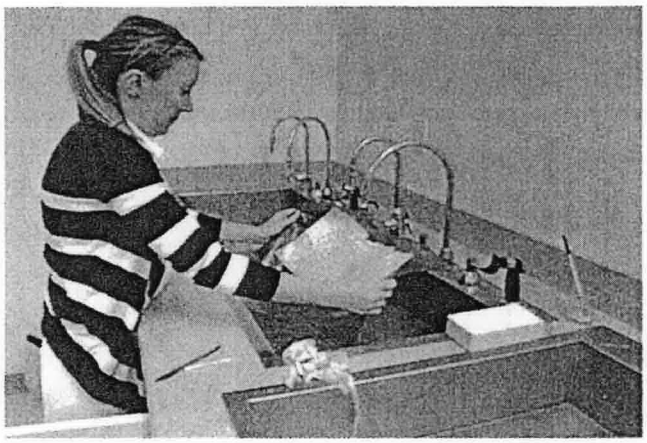


Each location also has a humidification chamber featuring an advanced paper suction table, humidity dome, and ultrasonic humidifier. This intricate and complex piece of equipment has limited distribution among conservators.



Kofile ensures that each laboratory is equipped to process chemical treatments correctly and safely. All solvents and necessary chemicals are handled in modern chemical fume hoods and HVAC systems. These systems offer the maximum protection, and safely exhaust fumes and gases. Kofile's HVAC systems meet or exceed OSHA and other regulations. Chemical-resistant gloves, safety glasses, aprons, and explosion-proof face shields protect conservators and Documents from toxins.

The large treatment sink at the Dallas facility is 8' by 5'. To our knowledge, it is the only one in existence. Custom made with polypropylene, the sink provides a large, flat, seamless surface for treating Documents.



Some of the other main tools and equipment include: board and bookbinding shears, copying presses, floor presses, gold tooling wheels, a sewing press, hand trimmers, a heat welder, a dry mount press, and scalpels.

OWNERSHIP OF DATA

All Brown County records (including volumes, document, digital images, metadata, and microfilm) serviced by Kofile shall remain the property of Brown County. This policy is applicable to any agreement, verbal or written, between Brown County and Kofile.

- The records shall not be used by Kofile other than in connection with providing the services pursuant to any agreement between Kofile and Brown County.
- The records shall not be disclosed, sold, assigned, leased, or otherwise provided to third parties by Kofile.
- The records shall not be commercially exploited by or on behalf of Kofile, its employees, officers, agents, invitees, or assigns, in any respect.
- Kofile shall not destroy any of the County's records without written authorization from the County.

PROJECT INVENTORY & PRICING

PROJECT OVERVIEW

This quote is presented via Kofile's TXMAS Contract No. **TXMAS-18-3602**. To purchase via TXMAS, please reference this contract number on the County's Purchase Order. Without a signed agreement, all pricing for the inventory herein is good for 90 days.

Level of service(s) are also defined on Page 5.2. Please note that two volumes are priced for combination. If binding separately is requested, then the price quote will change to reflect the additional binders.

BROWN COUNTY DISTRICT CLERK PROJECT PRICE QUOTE

RECORDS SERIES	VOLUME	DATE	PAGE COUNT	FORMAT	SHEET SIZE	LEVEL OF SERVICE	PRICE QUOTE
Criminal Minutes	A	Mar. 1884 - Sept. 1887	591	Manuscript/Sewn	18x12	PRV/IM	$3,173.67
	B	Sept. 1887 - Sept. 1890	530	Manuscript/Sewn	18x12	PRV/IM	$2,846.10
	D	Feb. 1890 - May 1897	640	Manuscript/Sewn	18x12	PRV/IM	$3,436.80
	E	May 1897 - July 1901	640	Manuscript/Sewn	18x12	PRV/IM	$3,436.80
	F	May 1901 - Aug. 1904	640	Manuscript/Sewn	18x12	PRV/IM	$3,436.80
	G	May 1903 - June 1914	40	Manuscript/Sewn	18x12	PRV/IM—*Priced for combination.*	$826.98
	J	May 1913 - July 1925	114	Manuscript/Sewn	18x12		
	M	May 1914 - Oct. 1925	525	Manuscript/Sewn	18x12	PRV/IM	$2,819.25
						TOTAL *(8 vols. & approx. 3,720 pp.)*	$19,976.40

COUNTY ACCEPTANCE

- Pricing is based on a Good Faith Estimate of page counts. Billing occurs on actual counts per agreed upon unit pricing; not to exceed the P.O. without written authorization from the County.

_____ _____ _____

Signature of Authorized County Representative *Title* *Date*

TXMAS BILLING & REPORTING REQUIREMENTS

The County is required to report the purchase via TxSmartBuy prior to Kofile's acceptance of the project. *The following TXMAS billing line item is applicable to the project:*

TXMAS-18-3602 BILLING LINE ITEM	PART NO.	NIGP	DESCRIPTION	UNIT PRICE	QTY.	TOTAL
	PRV704	96272	Record Book Preservation, Archival Imaging, & Microfilm by Page [MICROFILM EXCLUDED]	$5.37/Page	3,720 Pages	$19,976.40

Kofile can prepare a 'Shopping Cart' in TxSmartBuy <www.txsmartbuy.com/> and 'share' it with the County to complete its purchase.

STATE OF TEXAS CO-OP MEMBER LISTING FOR BROWN COUNTY	
LINK	https://comptroller.texas.gov/auto-data/purchasing/co-op/c0250.php
CO-OP #	C0250
Contact	Valerie Williams, valerie.williams@browncountytx.org, (325) 646-0328
Expiration	22-SEPT-2020

SCOPE OF SERVICES DEFINED

Records receive the following services as identified in the corresponding pricing table.

(PRV) Preservation—*Conservation Treatments, Deacidify, Encapsulate, & Bind*

- Kofile creates a permanent log (noting condition, page order, characteristics, and treatments) for each item upon receipt. Items are inspected and control numbered as necessary. A final quality check references this log.
- Dismantle volumes by hand.
- Surface clean sheets to remove materials and deposits—e.g., dust, soot, airborne particulate, sediment from water damage, mold/mildew residue, micro-organic growth, insect detritus, or biological or mineral contaminants. Tools include a microspatula, soft dusting brush, latex sponge, powdered vinyl eraser, or soft block eraser.
- Remove any non-archival repairs, adhesives, residual glues, or fasteners *to the extent possible without causing damage to paper and inks.*
- Mend tears and guard burns on back side of sheets with acid free and reversible mending materials. Sheets are mended with either Japanese tissue and methyl cellulose adhesive or Filmoplast R® (an acrylic-based, heat set tissue). Japanese paper used is often Kozo paper, in both natural and white finish because of its strength and transparent nature after application.
- Deacidify sheets (each side of each sheet) after careful testing with Bookkeepers®. This commercial solution of magnesium oxide, which neutralizes acidic inks and paper by providing an alkaline reserve (after pH and compatibility testing). Random testing ensures an 8.5 pH with a deviation of no more than ± .5.
- Encapsulate each sheet in a Lay Flat Archival Polyester Pocket™. Each custom envelope is composed of Skyroll SH72S® Mylar and includes a patented design. Dimensions match the "book block," with a 1¼" binding margin.
- Re-bind in custom-fitted and stamped binder (a *Heritage Recorder* binder or a *Disaster Safe County Binder*™) to match previous work. Each binder is manufactured on a per-book basis and sized to 1/4" incremental capacities.
- A volume may return split due to the added weight of the Mylar, depending on page count.
- A dedication/treatment report is included in each binder.

(IM) Archival Imaging (Image Capture, Clean Up, & Zonal Enhancements)

- Capture images at a minimum of 300 dpi at 256 gray levels, ensuring the highest quality for poor contrast and illegibility. Gray-scale ensures optimum resolution for each page.
- Images accumulate as Group IV bi-tonal images in a standard PDF or TIFF format.
- IMAGE PERFECT is Kofile's proprietary software. It ensures the optimum image quality. IMAGE PERFECT uses custom image clean up and enhancements such as deskew, despeckle, character repair, polarity reversal, and zonal processing.
- Crop excess blank space around image. This may involve manual cropping to insure best quality image.
- Images are named (tagged for the directory file structure) by Book, Volume, and Page.

- Images are grouped (stapled) together to form documents.
- When multiple documents (Deeds, etc.) exist on a single page, images are split so that each document is viewable individually.
- If requested, annotations are supported to allow the electronic addition (either custom or Book/Volume/Page) on the digital image to assist in recording keeping.
- Effectiveness and minimum legibility is verified through rigorous and systematic quality control. Each image is certified and sight-checked to ensure there are no missing pages, double feeds, and to account for "A" pages (added to the original).
- The County receives a MASTER (e.g., CD, DVD, ftp, flash drive) in a medium suitable to the project size.
- Kofile can hold a security copy of all digital images for safekeeping. Kofile does not sell, distribute, or grant unauthorized access to County records.

PROJECT PERSONNEL

Due to Kofile's commitment and highly trained and experienced staff, the firm is equipped to handle multifaceted and time-relevant projects. Projects are executed efficiently and to the highest professional standards.

Second- and third-generation conservators and public records experts address records. The industry experience of Kofile's ownership and key staff dates to the 1970s. Kofile's extensive experience reaches a wide range of permanent retention media—including manuscripts, volumes, plats, maps, negative Photostats, microfilm, digital images, photographs, etc. Projects range from one map, volume, or document to thousands.

Projects often continue in multiple phases over many years and administrations. With the combination of an experienced imaging team and technology competence, and considering our status as a software developer, our capability to enhance the image processing process extends well beyond that of competitors.

Upper management attend continuing education conferences and hold professional memberships with such organizations as the American Institute for the Conservation of Historic and Artistic Works (AIC). Kofile is an institutional member of the AIC and subscribes to their *Code of Ethics & Standards of Practice*.

Project Management

Each project is assigned a job number. All instructions and logs reference this number. Assigned personnel document each item and enter job numbers into our tracking database. Throughout, the Laboratory Manager coordinates and monitors progress by direct observation, supervision, and continuous review of the documentation. Periodic meetings of the staff and management also provide a forum for information exchange. Each client or batch of records is entered on a color-coded production and control board. Storage areas are likewise color-coded to correspond. Work order and individual documentation logs accompany the item throughout the entire process. The log includes the name of the Supervisor and the assigned technician.

Records are housed in the same location throughout the project so that any given record may be located quickly. When not undergoing treatment, records are immediately sent to the vault. Throughout each step, Kofile can track the exact person, assigned batch, date, time, number of documents, stage of treatment, and status.

The Account Manager handles all communication with the County. They will ensure that the project is completed on schedule and to the client's satisfaction. The Account

Manager is responsible for project supervision and are available to meet periodically via phone or in person for project coordination and progress updates.

Conservation Team Structure
A conservator supervises the conservation laboratory and daily work in the lab. Each of our locations has technicians that perform limited conservation treatments under close supervision. Kofile is a strong proponent of cross-training. Our conservation team has a strong retention rate and years of experience and practice. Less experienced workers are assigned to specific tasks, such as document prep or basic unbinding procedures.

The conservators oversee the performance of the treatments. They are responsible for the examination criteria of each item, including cost estimates. Joseph J. 'Joe' Marotti is not limited to any one location. He frequently travels between each location to assist in training and special projects.

Key conservation personnel are identified below, and resumes for are provided in the following pages:

Joe Marotti, *Senior Conservator; Special Projects*
Chris Marotti, *Conservator*

CHRIS MAROTTI
Conservator/Director of Central Operations

Marotti has served as Director of Operations for over seven years. He has a lifetime of experience in conservation and preservation practices. From a young age, he apprenticed in his father's conservation laboratory. He performs preservation and condition assessment surveys. He is also responsible for day to day operations, including coordinating purchasing and production to meet contract deadlines and goals. His input is invaluable, and his is readily available to customers to records collection challenges. He directly manages the Dallas Conservation laboratory.

Marotti also has experience researching and writing marketing, financial, and feasibility reports concerning new business acquisitions and acquisition prospects. He filled a key role in preparing and carrying out satellite operations in Carson City, Nevada, and Dallas, Texas. He has worked as a consultant for large municipalities concerning vault equipment and preservation/conservation approaches and practices. He has an exceptional knowledge of municipal markets, business practices, and conservation/preservation practices.

Professional History

2009—present *Associate Conservator and Director of Central Operations*
Kofile Technologies, Inc.
- Oversee day to day operations, including coordinating purchasing and production to meet contract deadlines and goals
- Directly manage the Dallas-based Conservation laboratory

2004—2009 *Assistant Conservator and Director of Sales and Marketing,*
Joseph J. Marotti Co., Essex, VT
- Research and write marketing, financial, and feasibility reports concerning new business acquisitions and acquisition prospects
- Filled a key role in preparing and carrying out satellite operations in Carson City, Nev., and Dallas, Tex.
- Consultant for large municipalities concerning vault equipment and preservation/conservation approaches and practices

1991—2000 *Preservation Technician,* Joseph J. Marotti Co.

Education

2005—2006 Business Management Studies, Community College of Vermont

2000—2004 Recreation Management and Business-Economic Studies, University of Vermont

Training and Certifications

1991—2000, 2004-2009
Apprenticeship. Joseph J. Marotti and Carole Marotti.

1991

Apprenticeship. Leopold Saint Paul, the former Director of the Conservation Laboratory at the Université de Liege, Belgium.

- Minor varnish removal for oil paintings, paper suction table cleaning of prints, fine book restoration, and paper dating through use of water mark identification.
- UV light observation of artifacts checking for evidence of previous restoration, ink solubility, and paper pH testing.

1991—1995

Apprenticeship. Carole Homola.

- Traditional hand-bookbinding

1991

Assistant. "Restoration of Documents and Works of Art on Paper." Maria Pukownik, former Chief Conservator at the Regional Historical Library Museum in Plock, Poland, and Conservation Department Head at the State Museum of Art Nouveau, Plock, Poland.

- Pukownik specializes in works of art on paper, and she is also extensively trained and experienced in the complete treatment of paintings. She is also skilled in cleaning, seamless repairs, reconstructions, painting in all traditional techniques, book repair, and bookbinding.

JOSEPH J. "JOE" MAROTTI
Conservator

Joe Marotti's experience is in art restoration and the preservation of archival materials such as books and manuscripts (primarily public records of County and Municipal Clerks). His interested was peaked working in his father's municipal and county supplies company.

The company opened a conservation division in 1985, and hired conservators, including Leopold Saint Paul, as Director, and Maria Pukownik. With 23 years of conservation experience, Saint Paul's expertise included the restoration of incunables and rare manuscripts dating to the 9th century. Norman Beaudoin, who had four years of previous conservation experience, was hired as conservation assistant and apprentice to Saint Paul.

In 1985, Mr. Marotti established Vermont's first private conservation lab specializing in public documents, oil paintings, works of art on paper, books and manuscripts, maps and charts, and vellum and parchment artifacts. Mr. Marotti established preservation programs in 150+ Vermont municipalities. With his education endeavors, Vermont record storage facilities updated crude safes and storage devices to NFPA-rated record storage vaults.

Mr. Marotti has collaborated with many conservators throughout his years in private practice, and he has conducted numerous Introduction to Archival Records Preservation workshops and presentations across New England. He frequently travels across the United States and consults with other Kofile conservators and technicians on best practices.

Mr. Marotti has conserved books, maps, artwork, parchment, vellum, and even papyrus. He routinely treated artwork that included offset reproductions, pen and ink drawings, lithographs, wood blocks, engravings, etchings, pastels, watercolors, photographs, and collages. Many were the work of well known artists such as Paul Gauguin, Mary Cassatt, Albert Bierstadt, John James Audubon, Gordon Grant, James McNeill Whistler, Ansel Adams, Ogden Pleissner, Sam Motherwell, Marc Chagall, and Nathaniel Currier.

Professional History

2009—present	Special Projects Conservator Consultant and Chairman Emeritus *Kofile Technologies, Inc.*
1972—2009	President *Joseph J. Marotti Co., Essex, VT*

Education

1964—1965 and 1971—1975
Electrical Engineering, University of Vermont

Professional Activities

Records Management System Design for the Fresno County Recorder's Vital Records, Fresno County Recorder, Fresno, CA—2013-Present

- Assessment of historical and public records, development of a Project Plan, coordinate

with the County engineer and architect to design storage solution for 1,600 volumes.

Presenter. Suction Table Demonstration. Preservation Workshop for Texas County and District Clerks, Dallas, Texas—2011

Presenter. "Preservation of County Records/Before and After Conservation Treatments." County & District Clerks Association of Texas, South Padre Island, Texas—2005.

Presenter. "Preservation of County Records." County Officials Association of Tennessee—2008

- Presented to over 500 attendees.

Presenter. "Preservation Presentation." Tennessee Register of Deeds Association Spring Conference—June 4, 2009

Engineer custom paper suction table and conduct training for Kathryn Myatt Carey & Associates, Salem, MA—1990s

Professional Exchange. Fine Art Restoration collaboration with Paul Lengyel, Fine Art Conservation and Restoration Services, Albany, NY—1990-1993

- Collaborations included the restoration of numerous works of art, including those by Rembrandt, Picasso, Maxfield Parrish, Alexander Calder, Joan Miro, Currier & Ives, etc.

Restoration of WWII Memorabilia and Military Posters. Watervliet Arsenal Museum, The United States Army, Watervliet, NY.

Instructor. "Conservation" course. Saint Michael's College, Winooski, VT. Continuing education program for Certified Municipal Clerks (CMU)—1991

Trainer. "Preservation of a Set of Wilson's American Ornithology Volumes." Keiran Rutherford, Intern.

- *This project lasted one year and saw the restoration of a complete set of volumes, including a leaf by leaf restoration of original hand-colored plates.*

System Storage Design Solution Architect for 38,682 Maps. Sacramento County Clerk and Recorder, Sacramento, CA—1991

- *Conserve, encapsulate, re-house, and image volumes and maps. Provide storage system for 38,682 maps.*

Attendee. "Use of a Suction Table: Site Training." Conducted by a conservator based out of a museum in mid-state New York—1991

Apprenticeship. Maria Pukownik, former Chief Conservator at the Regional Historical Library Museum in Plock, Poland, and Conservation Department Head at the State Museum of Art Nouveau, Plock, Poland—1986-1991

Intern Supervisor. Local high school, Saint Michael's College, and University of Vermont (UVM) curriculums—multiple years.

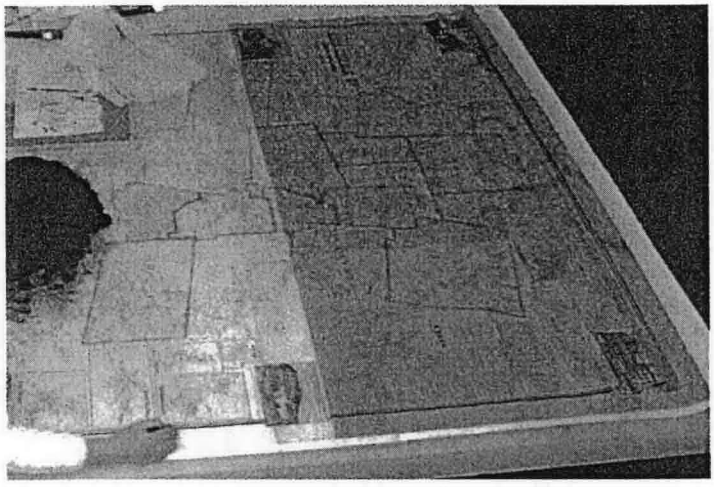
Professional Affiliations

Member, American Institute for Conservation (AIC)

QUALIFICATIONS & EXPERIENCE

EXPERIENCE

President Abraham Lincoln, Stephen F. Austin, President John Quincy Adams, Bruce Lee, President John F. Kennedy, General Stonewall Jackson, King George III, Wyatt Earp, Grandma Moses, James Morris, and Henry David Thoreau.



Whether written with their hands, treasured as their keepsake, or recorded in their last breath, the names above represent a short selection of the historical significance personified by the written records and prints that Kofile has preserved.

Kofile has eight years of experience providing the proposal services under the current ownership. This number raises to 58 years of experience when factoring in the experience of our root companies, all of which are still active leadership in the current company. These root companies contribute a combined 113 years of experience across the U.S.

From 2014-July 2017, Kofile had 1,502 entities in the public and a selection of private sector accounts (this does not include multiple office or departments within the government of Our persistence and workmanship has allowed Kofile to promote and contribute to the preservation of local records as well as those of national significance. As our references document, Kofile establishes enduring professional relationships and remains loyal to each project.

Kofile projects are often long-term and based on budgets that often fluctuate. This type of partnership illustrates Kofile's interest in the success of each and every preservation project. Please note that more references and project details are available upon request. Kofile has addressed the following projects for archival materials including maps and records books from the offices of Clerks, Recorders, and Assessors. As the references document, Kofile establishes enduring professional relationships with customers. Kofile remains loyal to each project. Excellent customer service and continued devotion to serving the public good motivate each aspect of a Kofile project.

FIRM HISTORY

Kofile is the oldest and most experienced private firm specializing in permanent public records in the United States. Kofile-'s parent company is Kofile, Inc. (which owns 100% of Kofile). For five decades, the leaders of Kofile have worked with states, counties, municipalities, and private archives across the United States. Kofile operates five regional conservation &/or digitization facilities (Dallas, TX, Essex, VT, Carson City, NV, Greensboro, NC, and Norcross, GA).

Kofile employs the most highly trained staff available with any vendor. Staff have extensive experience assessing and treating a wide range of media—including manuscripts, volumes, plats, maps, negative Photostats, microfilm, digital images, photographs, etc. Staff hold 10—30 years of experience with archival documents. Each of Kofile's three primary root preservation companies is introduced below.

- *Joseph J. Marotti Co., Inc. dates to 1961, and it operated under that name for 48 years.*
- *Brown's River Bindery dates to 1972, and operated under that name for 37 years.*
- *Louisiana Binding Service, Inc. (LBS) dates to 1987, and operated under that name for 24 years.*

Kofile also holds a GSA Contract (GSA 70 No. GSA-35F-275AA) and TXMAS Contract No. TXMAS-18-3602.

Kofile has completed numerous projects of similar scale and nature to this project. As Kofile's references document, Kofile establishes enduring professional relationships with customers. Kofile remains loyal to each project. Kofile prides itself on excellent customer service and continued devotion to serving the public good.

Services Provided by the Firm

In addition to its Records Management Systems, Kofile can provide solutions that address many aspects of a County—from binders, preservation, restoration, imaging, image processing and enhancements, re-creation, re-indexing, index verification, film to image conversion, archival microfilm, microfilm duplication, complete document indexing, recording, workflow, imaging systems, Internet hosting and data access, and electronic recording.

Key Products:

Lay Flat Archival Polyester Pocket™
Disaster Safe County Binder™
Archival Quality County Binder™
Vanguard Records Management System
CountyFusion™ Records Management System

Preservation Solutions & Services:

Book & Document Conservation
Map Restoration
Encapsulation
Deacidification
Negative Photostat Stabilizer
County Recorder Binders

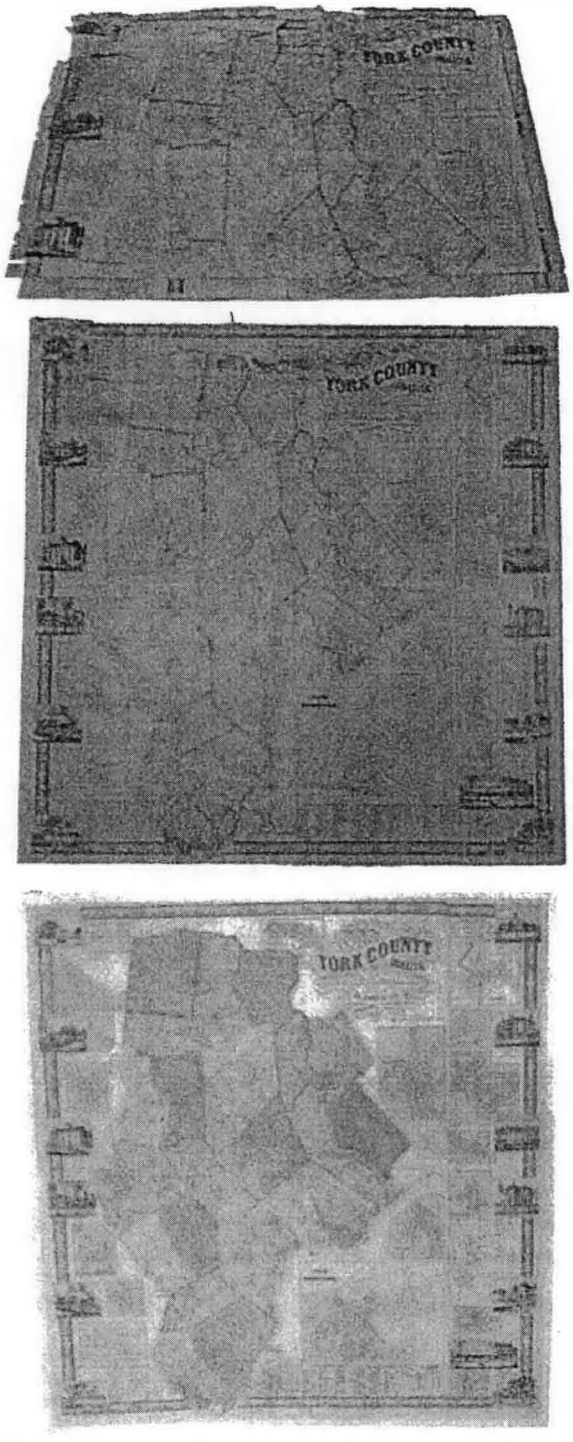
Archival Imaging
Book Re-creation
Indexing (Back File & Daily)
Micrographics
High Density Shelving
Transcription & Translation

QUALIFICATIONS

As stated, each location has an advanced paper suction table for treatments such as ultrasonic humidification, washing, deacidification of fragile materials, backing, lining, repair, leaf casting, and stain reduction. This device treats books, maps, artwork, parchment, vellum, and even papyrus. Treated artwork included offset reproductions, pen and ink drawings, lithographs, wood blocks, engravings, etchings, watercolors, photographs, and collages.

Solutions above and beyond the normal scope of paper conservation include:

- Water damaged volumes in which the pages have fused into a sold block.
- Remove 1898 F.W. Emery lamination with enzyme treatment.
- Remove Barrows lamination on manuscripts and charters.
- Apply polyacrylic coatings to soluble colored media for suction table treatment (Wilson's Ornithology, 1813).
- Remove polyurethane coatings on soft stone (Verdite) Statuary.
- Remove gelatin photo emulsion photographs stuck on glass.
- Clean, reinforce, and preserve severely mold and mildew damaged materials.
- Clean, mend, preserve, and frame large media such as wall Display Level maps.
- Flatten, stabilize, and conservation framing of medieval sheet music on parchment (12th Century).
- Consolidate, repair, flatten, and conservation framing of unique 19th-century sampler (Mary Todd Lincoln).
- Re-humidify, stabilize, and flatten a rare African primitive painting on goat hide (circa 1800s).
- Flatten and stabilize badly warped Russian Icon paintings on wooden panels circa 1400s.
- Repair and stabilization of damaged Ming Dynasty wooden horses.
- Restore severely fire damaged art—both paper and oil paintings.



This 1856 York County, Maine, map arrived in two pieces and very tattered. This work of art and irreplaceable information is now saved for future generations. It underwent conservation treatments and restoration at the Dallas laboratory.

NOTABLE PROJECTS

Projects are often long-term and based on available budgets. This partnership illustrates Kofile's interest in the success of each project. Please note that references are available upon request. Kofile also restores special and unique document from private collections. *A short selection of the variety of projects completed by Kofile includes:*

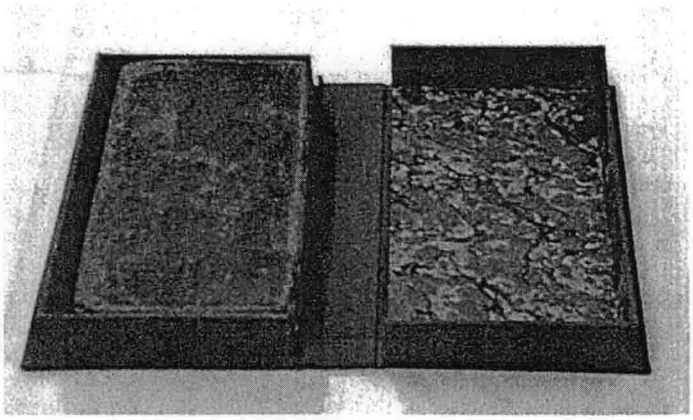
Preservationists for the Texas Court Records Preservation Task Force, 2010—2012.

"Ship Papers Issued to Obed Shearman, Master and Commander of the Minerva Smyth"—2013

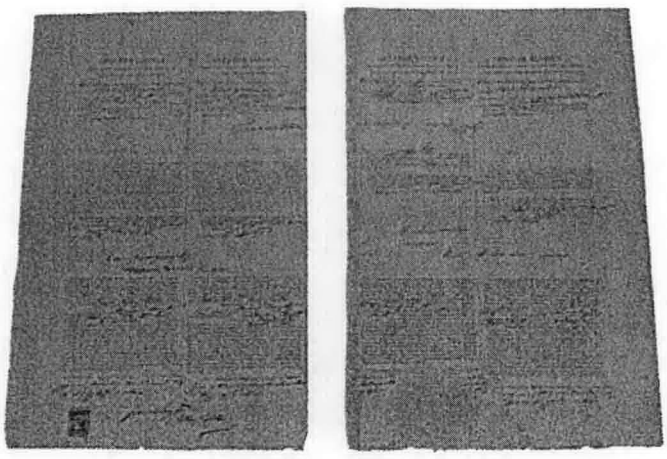
Private Collection. *The Anatomical Exercises of Dr. William Harvey, ed. 1673*—2013

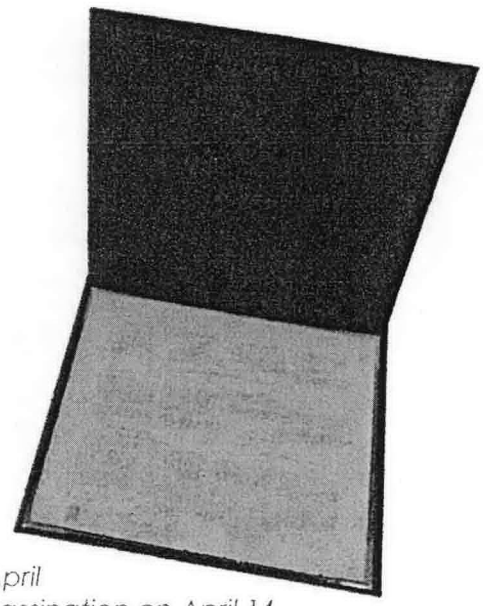
Historical Official Records Pre-1850 to 1950, Hidalgo County Clerk's Office, Edinburg, TX—2009-Present

Historical Public Documents and Volumes, Brazoria County Clerk's Office, Angleton, TX—2009-Present



This volume of The Anatomical Exercises of Dr. William Harvey, ed. 1673, was located in an attic and nearly disposed. Its value is estimated at $20,000 to $25,000. Conservator Chris Marotti deacidified the pages and preserved it in a custom box that he constructed.





These ship papers were issued to Obed Shearman, Master and Commander of the Minerva Smyth. It was signed by President Abraham Lincoln and Secretary of State William H. Seward. Although dated April 20,1865, the document was signed prior to Lincoln's assassination on April 14. The text appears in four languages, and contains a stamp and Presidential seal. Shearman received it on the same day that he heard the news of the President's death. Kofile performed conservation treatments including cleaning and deacidification. The Document was encapsulated and custom archival housing folder was created.

Historical Public Documents and Volumes, Nueces County Clerk's Office, Corpus Christi, TX—2013

Circa 1934 Town Charter and Town Deed, Artist Edward J. Ades, Works Progress Administration, Westport Town Clerk's Office, Westport, VT. 2005.

San Francisco County and City of San Francisco, CA, *McInerny Judgments*

Shasta County, CA, *Original Shasta County map restoration and housing*

Los Angeles County Clerk and Recorder, Norwalk, CA, *Preservation of County Records*: 1,975 volumes of Patents, Grantor/Grantee Indexes, and Vitals.

The Bruce Lee Foundation, *Commentaries on the Martial Way* (Lee's original memoirs)

Bureau of Conveyances, Department of Land and Natural Resources, Honolulu, HI, *Original Pearl Harbor Map and Deeds of Conveyances*

Cochise County Superior Court, AZ , *Wyatt Earp Manuscripts*

Pima County, AZ, *San Pedro Cattle Company Records*

Accomack County, VA, *documents from The Daughters of the American Revolution*

Barnstable, MA, *Civil War Rebellion Record*

Clinton, NY, *King George letter*

Dare County, NC, *Birth Certificates of The Mighty Midgets of Chicamacomico*

Dutchess County, NY, *Indentures*

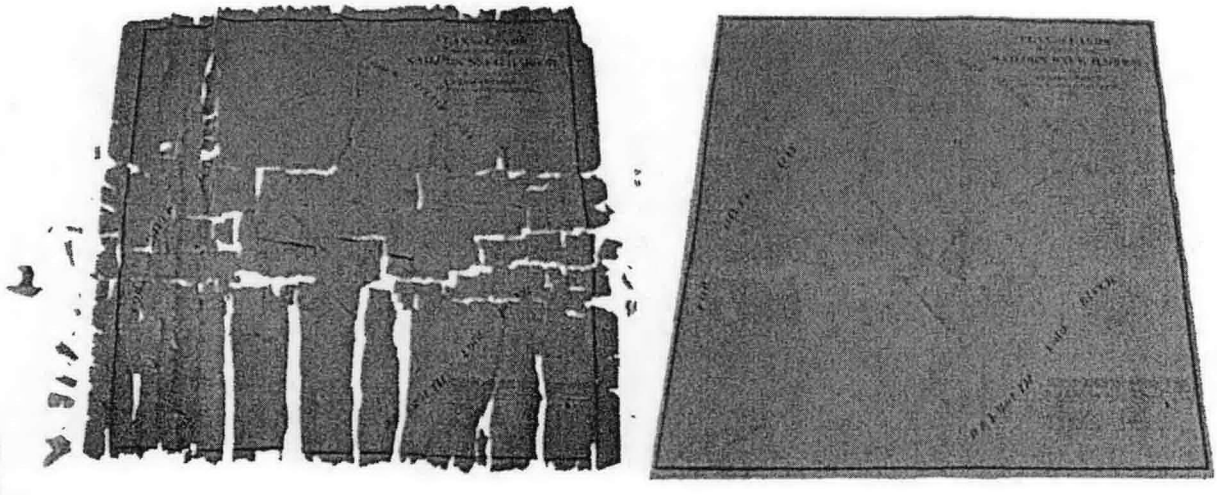
Ellington, CT, *Jewish Cemetery Records*

Kofile has provided conservation and restoration services for the projects administered by the Connecticut State Library, the State Library of Virginia, and the Vermont State Archives and Records Administration (The Constitution of 1777, Vermont).

The Episcopal Diocese of Vermont, Burlington, VT, *Early Church Records*

Hague, NY, *American Graphite Company, 1889*

Hunterdon County, NJ, *Naturalization Records, 1804—1966*



The 1894 map above is titled, "Plan of Lands Belonging to the Sailors' Snug Harbor" and is from Quincy, Massachusetts. Rolled for years, the map was pieced together and backed.

Little Compton, RI, *Copy of the Declaration of Independence*

Long Island Rail Road (LIRR), NY, *Preservation of 19 historical volumes containing the earliest maps of the LIRR System*

Massachusetts Supreme Judicial Court, *Salem Witchcraft Trials Transcripts, 1600s*

Middlebury College, VT , *The Nuremberg Chronicles*, 1493, and Henry Thoreau's Personal Copy of *Walden*

Middletown, RI, *The Boston Post*

Montgomery County, VA, *Register of Free Negroes, 1823—1847*

Morningside Gallery, Latham, NY, *JFK Congressional letter, dated Sept. 11, 1952*

Morris, CT, *James Morris Museum Parchment Documents*

Nantucket, MA, *Wharf Rats Club Documents (Weather Records, 1700s)*

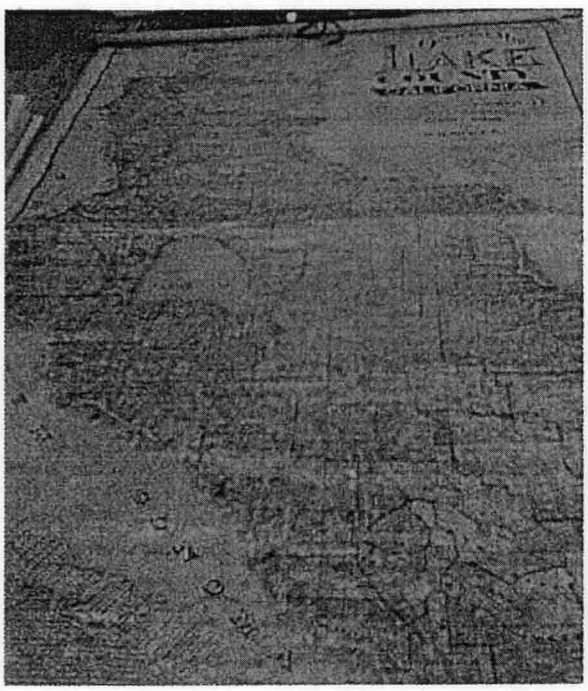
New Hampshire Archives, NH, Australian Ballots, 1892 and 1894

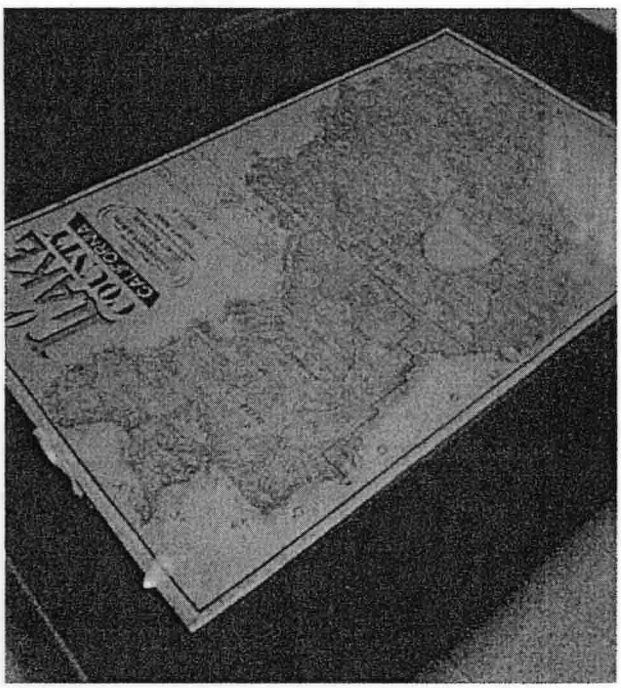
Kofile provided ongoing restoration for the Jackson Barracks Military Library of the Louisiana Military Department. This project included restoration of Civil War documents, including: books, manuscripts, periodicals, maps and memorabilia. These documents were damaged during Hurricane Katrina.

Order of the Alaska Moose, AK, *Order of the Alaska Moose*

Pawtuxet, RI, *Pawtuxet Valley Gleaners*

Plymouth, MA, *General Laws 1658—1691, Colony Records*





The map pictured above is the "Official Map of Lake County, California" and dates to the late 1890s. This map is part of a large collection of restored maps. As pictured, these maps were laminated, water damaged, taped, and tattered. After conservation and restoration at Kofile, the map was returned for flat storage.

Private Collection, NY, *Top Secret Declassified U.S. Government Records and Telegraph Transmissions/ Nazi Records*

Private Collection, VA, *Civil War scrapbook*

Private Collection, VA, *Stonewall Jackson's Final Medical Records from Dr. Hunter McGuire*

Sussex County, VA, *118 Early Wills*

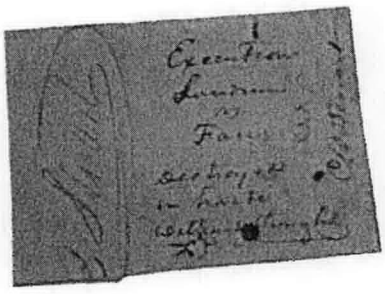
Swan Lake, NY, *Restoration of "Sugaring Off" by Grandma Moses, a limited edition print*

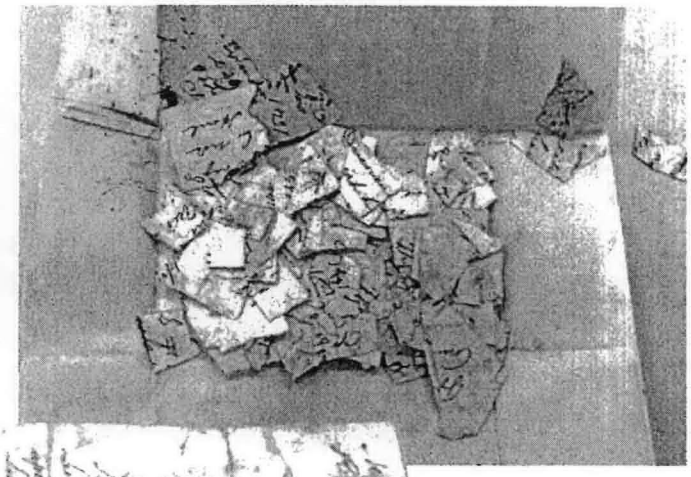
Thomaston, CT, *House Joint Resolution No. 155 and the Petition of Seth Thomas*

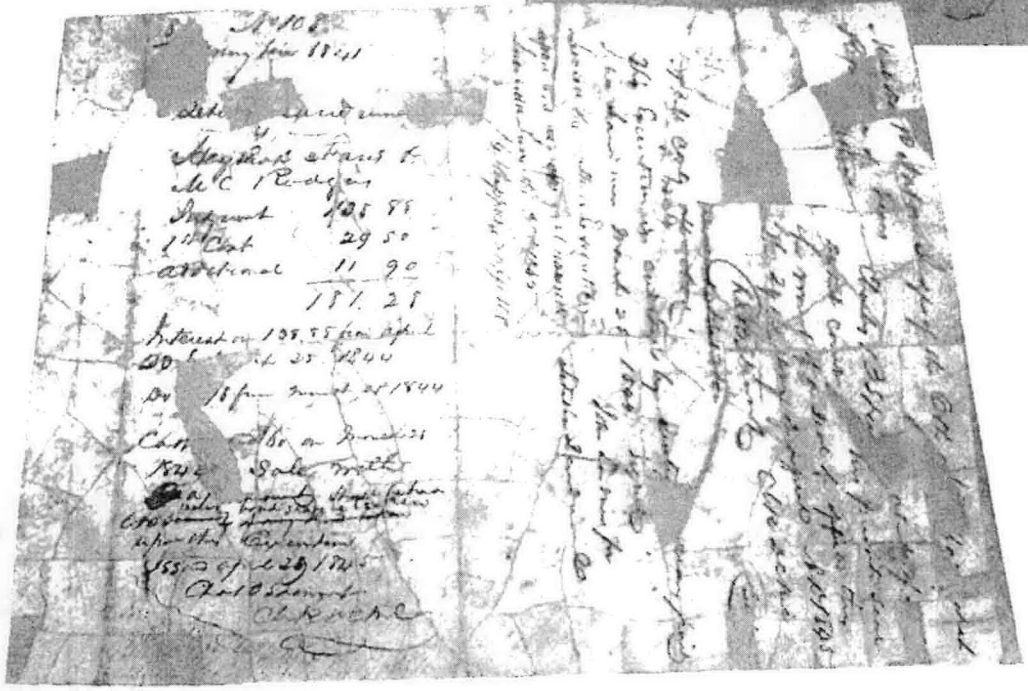
Trenton, NY, *Trenton Falls Hotel Register, 1862—1875*

Washington County, NY, *The John Williams Papers*

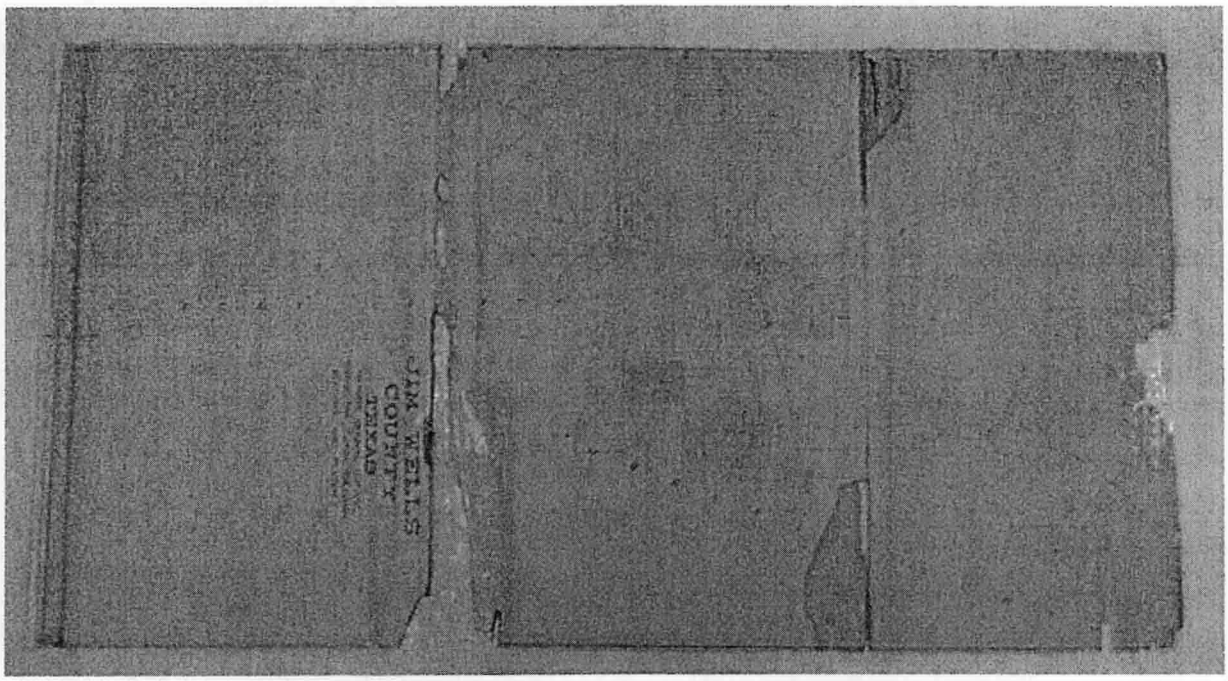
This page is from an 1841 Execution Document from a Texas County. The jumbled pieces were held in a folded sheet of paper with a note that read: "...destroyed in haste without thought" —see below. A puzzle no more, the page is now conserved and preserved.

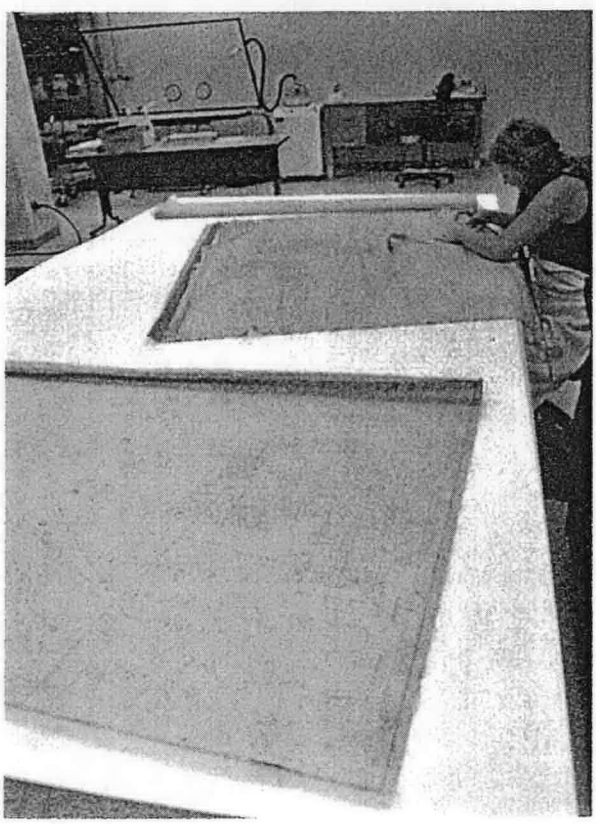






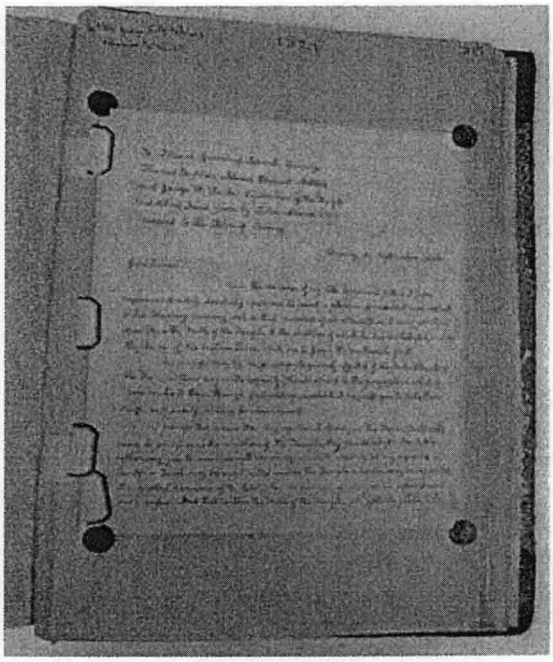
Once the tape was removed from this 1911 Map, it separated into three pieces. The map was restored and framed. The map was framed with an extra depth custom frame molding. A lens with ultraviolet filter is utilized to add a measure of protection. The mat, backing, and sealing are all acid-free.

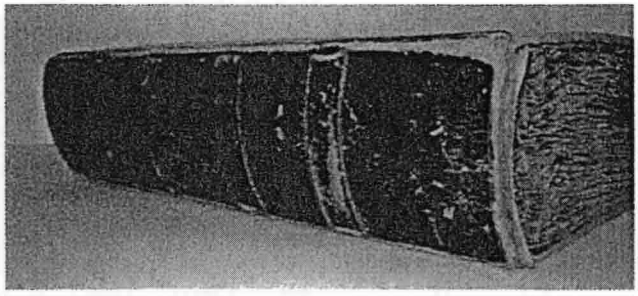


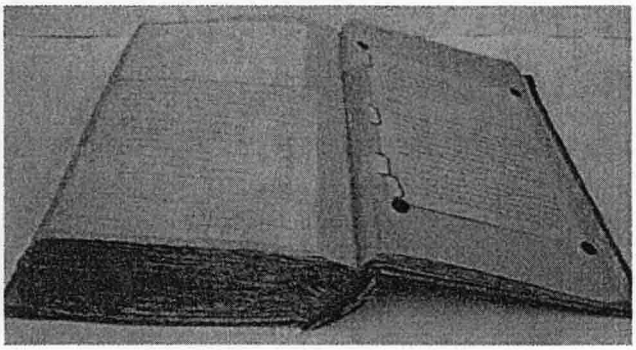


This project saw the conservation and imaging of 86 items (volumes, documents, photographs, portraits & framing) from April 2010 to October 2011 for the Town Clerk of Quincy, MA. Project highlights included the preservation and imaging of Kennedy Family-related letters and photographs.

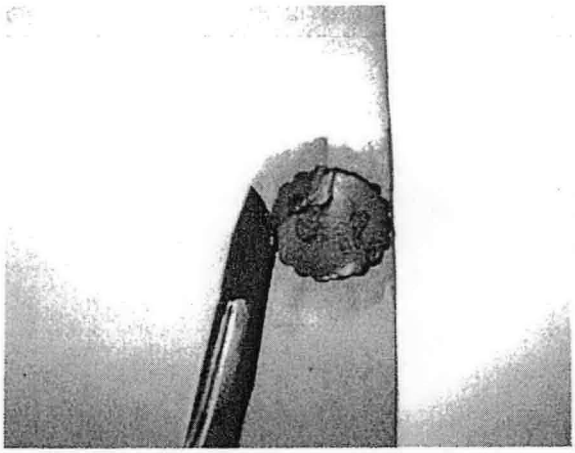
One of the volumes contained a handwritten letter from President John Quincy Adams in which he discussed the burial plans for his parents, dated September 8, 1826. The existence of this letter was unknown to the world as it had been long buried in the volume.

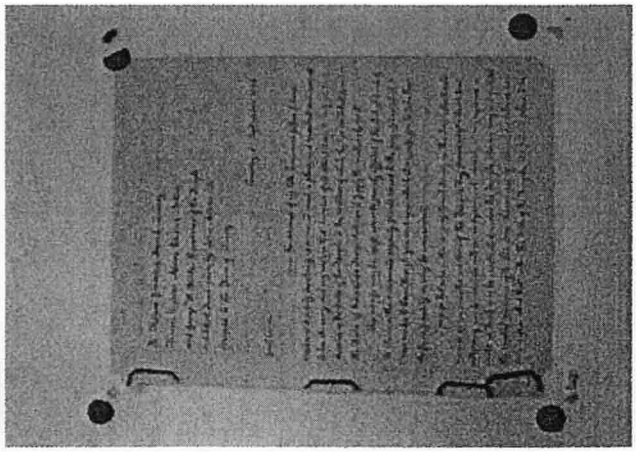




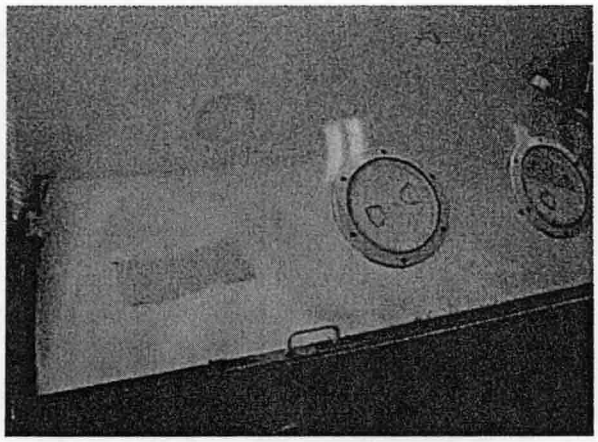
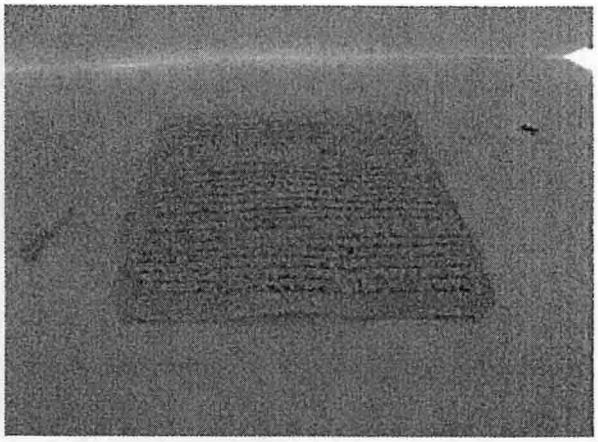


The President Adams letter was found in Archives Volume 1, 1792—1827, on Page 305.

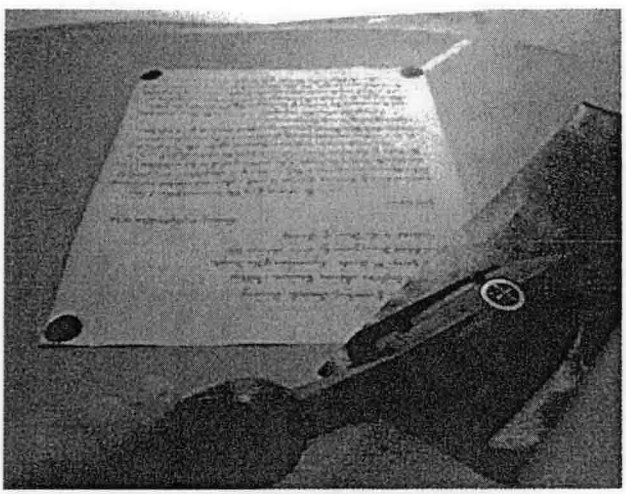
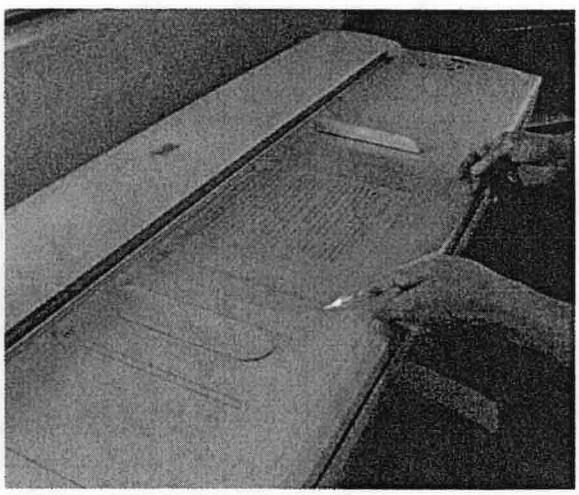




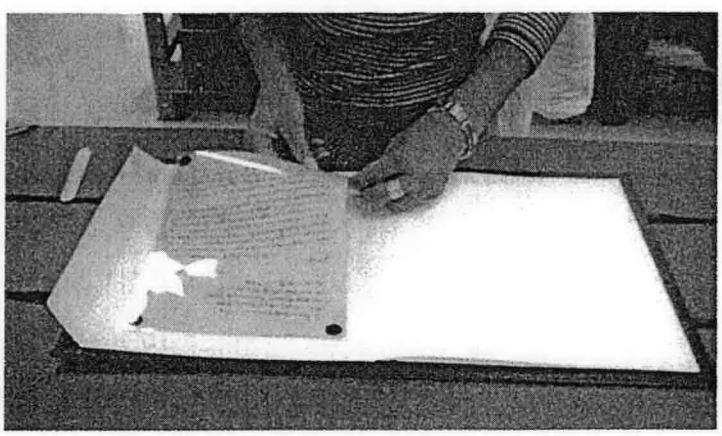
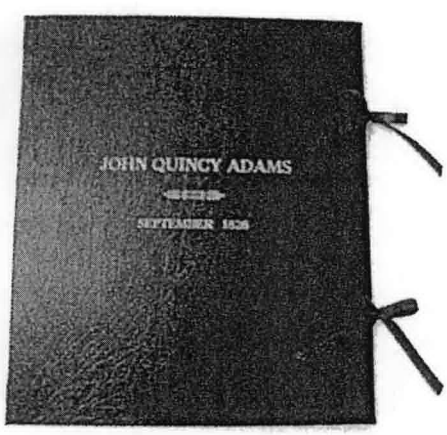
In order for the preservation of the sheet to commence, the seals were carefully removed. The letter was then removed from the page.

The letter was humidified in a humidification chamber due to its age and condition.

The letter was gently mended, then imaged in a Mylar sleeve.

The letter was encapsulated in a custom Mylar sleeve, and a custom enclosure was constructed to house the letter.

DEFINITIONS

PROFESSIONAL TERMINOLOGY

A Records Manager is assigned the task of managing a specific agency's current and historic records.This responsibility includes providing public access to these records. Such a task requires understanding the differences between preservation, restoration, and conservation, and knowing why preservation is the preferred method for county records.

What is Preservation? The protection of cultural property through activities to minimize chemical and physical damage and deterioration to prevent data loss. The goal is to prolong the existence and useable life of cultural property. It can incorporate any combination of conservation, treatment, stabilization, preventative care, or digitization—or any maintenance or repair of the *existing* resource to protect from further deterioration.

What is Restoration? Treatment procedures that aim to return cultural property to a known or assumed state, often through the addition of non-original material. The goal is to eliminate the appearance of aging and restore the media to its original appearance or form (or that of a particular period).

What is Conservation? A profession devoted to the preservation of cultural property for the future. Activities include examination, documentation, treatment, and preventive care supported by research and education.

Conservators treat records to preserve them in their original format. They examine records, assess condition/materials, and recommend remedial treatments to arrest deterioration and improve condition. Treatments are documented (in writing and with photographs) to provide information for future archivists and conservators. Conservation is a dynamic and developing field. Conservators perform research on materials and techniques, participate in continuing education programs, and follow the AIC *Code of Ethics & Guidelines*.

What is Treatment? The deliberate alteration of the chemical and/or physical aspects of cultural property, aimed primarily at prolonging its existence. Treatment may consist of stabilization and/or restoration. Example treatments include cleaning, removing damaging materials (e.g. mold, tape, or deteriorating adhesives), mending tears, deacidifying records at risk from acid deterioration, and providing custom housing made from stable materials.

What is Preventative Care? Also referred to as preventive conservation, it mitigates deterioration and damage to cultural property through the formulation and implementation of policies and procedures for the following: appropriate environmental conditions; handling and maintenance procedures for storage, exhibition, packing, transport, and use; integrated pest management; emergency preparedness and response; and reformatting/duplication.

Definitions are compiled directly from the following sources:

* AIC Definitions of Conservation Terminology, Directory of the American Institute for Conservation of Historic & Artistic Works (AIC), 1998, p. 22. <http://aic.stanford.edu/geninfo/defin.html>
* Bellardo, Lewis J. and Bellardo, Lynn Lady, A Glossary for Archivists, Manuscript Curators, and Records Managers, The Society of American Archivists, Chicago, 1992, pp. 8, 26-27.
* Ritzenthaler, Mary Lynn, Preserving Archives & Manuscripts, The Society of American Archivists, Chicago, 1993, pp. 1-3.

Alkalization (Deacidification)
Alkalization (deacidification) refers to the addition of a finely divided alkaline material to the paper fibers. Alkalization is different from simple water washing, which does remove acid but does not leave an acid-neutralizer in the paper. The addition of an alkaline buffer is recommended for certain papers that would otherwise deteriorate because of their tendency to produce acid, or for acidic papers that cannot be washed.

Where possible, alkalization is achieved aqueously by immersion in an appropriate alkaline solution. If water-soluble media are present, the artifact may be alkalized non-aqueously with an alkaline salt in an organic solvent. A fine mist of this solution is sprayed on the object.

Archives
Records of an individual or organization maintained as a body of documentation after they have fulfilled the purpose for which they were created, because they contain information of enduring value.

Archival Enterprise
Refers to the work of the archivist in (1) identifying and acquiring those bodies of records that have enduring value, (2) arranging, describing, and preserving each group of records in a manner that at the same time reflects the form in which the creator kept them and permits every subsequent user to determine readily their scope and content, and (3) providing assistance to customers in locating documentation pertinent to the search that brought them into the archival repository.

Backing Board
Wedge-shaped board beveled at the top edge used to form a joint when a book is being backed.

Bench Shears
A species of large shears used for cutting book boards, sometimes fastened to a workbench.

Bit Depth
The number of bits of image information in an image. Black and white images have 1 bit per pixel. Grayscale images typically have 8 bits per pixel. RGB images usually have 24 bits per pixel (eight in each of the three RGB channels) while CMYK images typically have 32 bits per pixel. If the bit per pixel increases in an image, the total image bit depth increases as well. For instance, an 8-bit per color RGB image has a total image bit depth of 24 bits, while a 10-bit per color image will have a total image bit depth of. See Capture bit depth.

Bitmap
A type of file, usually photos or artwork of some sort, that is composed of pixels. This type of format allows for a continuous tone and fine detail to be possible on the computer. Examples: TIFF, Paint, PICT.

Book Covers
A term applied to the covered sides of a book. Protective covers of soft leather, like doeskin, sewed fast to a leather covered book. This custom was in use during the Middle Ages and early Renaissance.

Bound Book
A covered book the sections of which have been sewn around cords or some other material, the ends of which are laced though the cover boards.

Braded Binding
A type of temporary binding said to have originated in Germany and first adopted in France by a binder named Bradel. Known in France as "cartonnage à la Bradel."

Capture Bit Depth
The number of bits per pixel which an image capture device such as a scanner or digital camera can capture. Typical capture bit depths are 8, 10,12 and 14 bits per pixel. The higher the bit depth the more image information is captured. Often capture bit depth is expressed as the total number of bits captured in a three -channel RGB image, where a 10-bit per pixel capture bit depth is expressed as a 30-bit capture bit depth for the combination of all three channels.

Calibration
The adjustment which must be done to make sure that a scanner or digital camera will properly capture an image. Fundamental calibration techniques usually involve linearization and neutralization.

Channel
A single, usually 8-bit grayscale portion of an image. There are two kinds of channels, Color and Selection channels. Color channels are the fundamental building blocks of color images, while selection channels are created from selections. Channels are often saved.

Color Cast
The presence of color when none should be there. Color cast is typically identified when a neutral or gray portion of an image has unequal amounts of red, green or blue. Fixing a color cast is called neutralization. There are two types of color cast, scanner and image casts, which should be adjusted separately. See Neutralization.

Commercial Binder
A term used to denote a binder who turns out publishers' editions in "castings," using machinery for the work. Better termed a machine binder.

Common Rendition
Controlling the image tones so detail or information is not clipped or lost. Ensuring accurate tone reproduction (the appropriate distribution of the tones) for digital images by placing selected densities on a grayscale reference target at specific digital levels or aim points (*white point* is the lightest spot in the image and *black point* the darkest spot in the image). Adjusting production master files to a Common Rendition provides significant benefits in terms of being able to batch process and treat all images in the same manner.

Consolidation and Fixing
When it is absolutely necessary, flaking or friable material can be consolidated with a synthetic resin or gelatin. Pastels are usually not fixed as color change can result. When it is desirable to wash a paper artifact, water-soluble color can be fixed with applications of a dilute synthetic resin. This treatment is practical only when small areas of soluble media are present.

Contone
Abbreviation for continuous tone image. Contone images typically contain a variety of gradually changing grayscale values, unlike a line art images which are typically flat looking with few if any shades of gray. A photograph is a typical example of a contone image. Contrast with line art.

Curve
A line graph which controls the ratio of input to output values for grayscale values in an image. A curve is often used to control the brightness and contrast of images and is used to adjust the distribution of grayscale values in individual color channels to accomplish color correction.

Deckle Edge
The rough or irregular edge produced on a sheet of paper when in process of being made. Especially characteristic of handmade paper.

Disbinding
A word coined to describe the process of reversing the binding on a book. Books are taken apart by hand, by first removing the cover, then removing the glue and all sewing threads. Then the signature is taken apart into individual leaves, which are dismantled into individual sheets.

DMAX (Maximum Density)
Measurement is often used to state the darkest shade of gray which an image capture device can distinguish. Instruments with high dynamic ranges usually have high DMax's as well. See *Dynamic Range*.

Dot (Halftone Dot)
The building block of continuous tone-printed images. Halftone dot resolution is usually commonly referred to as line screen or LPI (lines per inch). Typically line screens in commercial printing vary from 133 lpi to 150 lpi. See *Output resolution*.

Dot Gain
The tendency for halftone dots to "grow" or enlarge when they are printed. This dot gain occurs because ink and toner tend to spread out when they are applied to printing substrates. Dot gain results in images which print darker than they scan and view.

Dot Gain Adjustment
The lightening of an image, usually through the application of a lightening curve, to precompensate for the darkening which will occur when a halftone dot-based image is printed.

dpi
A commonly used general term for resolution. DPI is often used when other terms are more accurate and useful. See ppi, Spot, Dot, and Res.

Diffuse Highlights
Lightest portion of an image which still has detail. This is the most important highlight portion of an image to be captured and preserved. See *Specular highlight*.

Dynamic Range
The range of grayscale values, from black to white, which can be captured by a scanner or digital camera. The dynamic range scale is a logarithmic scale ranging from 0 to 4.0 with 4.0 being the highest. Image capture devices which have high dynamic range can distinguish wider range or grayscale values than devices which have low dynamic range. Low dynamic range devices, with dynamic ranges <3.0, typically have a difficult time distinguishing shadow details in images.

Edge Reproduction
The main focus of scanning line art. Reproducing the edge of line art is the key to good line art scans. Using the optical resolution of the scanner is often a key to accurate reproduction of line art edges.

Electronic Records
Records created and effectively usable, if not usable only, within the electronic environment. Hard copy printouts, because they lack the manipulability and often the provincial data essential to fully understand a record, or because they are only slices of information in a database, are not the same as the record in electronic form.

Electrostatic Print
A method of printing on various types of paper, vellums and films, in which image formation depends on electrical, rather than chemical changes induced by light. A copy machine or Xerox machine uses an electrostatic process.

End Papers
The extra unprinted papers placed at the beginning and the end of a text, a sheet of which is pasted down on the inside of the front and back book covers.

Extra Binder
A hand binder who uses the best materials and employs the soundest methods of construction and who usually decorates each binding with a design especially made for it.

Extra Binding
A term used to denote a binding done by hand with especial care.

Filling Areas of Paper Loss
Holes or paper losses may be filled with Japanese paper (the least expensive method) or with paper pulp. Pulp fills of extensively damaged papers may be achieved by leaf casting the entire sheet using a specialized machine. Another option is inlaying with a paper carefully chosen to match the original in weight, texture, and color. The latter is the most time-consuming option, reserved for objects of aesthetic value.

Final Scan
A scan preformed at high resolution after an image has been viewed, cropped, analyzed and set up using a low resolution preview scan. See Preview scan.

Finishing Press
A small lying press used for holding a book while it is being tooled, and for some other operations in bookbinding.

Flattening
Flattening is necessary following aqueous treatment or when environmental conditions, accidents, or handling have distorted a sheet. After gentle humidification, flattening is done between blotters or felts under moderate pressure. Objects that have been lined can be flattened on a drying screen.

Fold Endurance
A method of measuring a paper's ability to fold without breaking the fibers. Paper is folded with enough force to crease paper fibers, creating a memory . Same is folded in opposite direction. Process is continued until paper fibers fatigue and break free from one and another. The endurance is measured by the number of successful folds, without failure.

Full-bound
When the entire back and sides of a book are covered with leather.

Gamut
The range of reproducible colors which a device has available. A color monitor usually has a larger color gamut than a CMYK printer; therefore there are colors which we can see and produce on a color monitor which we cannot reproduce on the CMYK printer.

Gang or Batch Scan
Scanning multiple images in one pass (all images have identical settings).

Gold Leaf
A thin leaf of gold beaten out of a block of gold.

Gray Map
A chart, usually a histogram, which shows the distribution and frequency of the grayscale value in an image.

Grayscale Reproduction
The main focus of scanning contone images, such as grayscale and color photographs. Scanner calibration, linearization and neutralization, as well as the setting of proper highlight and shadow points are keys to accurate reproduction of grayscale values.

Grayscale vs. Black and White
Grayscale imaging works best for older documents with poor legibility or diffuse characters, with handwritten annotations or other markings, with low inherent contrast between the text and the paper background, with staining or fading, and with halftone illustrations.

Guarding
The process of pasting strips of paper over the folds of the leaves of a book.

Halftone
An image built out of a pattern on halftone dots. Continuous tone images (photographs) cannot be printed as a continuous tone on a printing press, so they are reconstructed out of patterns of dots. These patterns are small and appear as a continuous tone image when viewed at the proper distance.

Highlight Point-Diffuse
The lightest portion of an image with details. A diffuse highlight area contains significant grayscale value or information, and will print as a light value of grayscale, with details. An example would be the lightest portion of a white shirt. The typical range in which a shadow point will fall is 3% - 15% grayscale.

Highlight Point-Specular
The lightest portion of an image which contains NO details. A specular highlight area contains little or no grayscale value or information, and will print as pure white with no details. An example would be a reflection off of a chrome bumper. A typical grayscale value for a specular highlight is 0% gray.

Histogram
A chart with highlight, mid-tone and shadow sliders which displays the frequency and distribution of grayscale values in an image. A histogram is often used for setting the highlight and shadow points in an image.

HSV/L
Hue, Saturation and Value/ Lightness are used to describe the color of a pixel. Hue is the basic color determined by its frequency or wavelength of light. Saturation is a measure of the intensity or purity of the color and is controlled by the amount of white color added to the basic color. Value or Lightness is the measure of the grayscale value of the color.

Inpainting (Retouching)
Inpainting is done by judicious application of watercolor, acrylics, gouache, or pastel to filled areas or to surface losses such as scratches, small abrasions, or media losses along tears.

Input Resolution
Resolution terminology used to refer to images which have been captured or created as pixel-based images. Usually expressed as the number of pixels per inch (ppi) or pixels per millimeter (Res). See *Input resolution*.

Intensitometer
A tool, often called a densitometer, which is used to measure the grayscale values of pixel-based images.

Iron-Gall Ink
It is the most common ink used before the 19th Century, both for writing and for drawing, and was made from a concoction of iron sulfate, gall-nuts, and gum Arabic, which was added as a binder. Iron -gall ink may be somewhat less transparent, but is only very obviously distinguishable from bistre when it has been applied in excessive concentration. In these cases, the acidity of the ink eats through the paper to the severe detriment of the artwork. Curiously, it was this quality which first attracted scribes to iron-gall ink in the Middle Ages. It became invaluable for drafting legal documents, since, once it began to eat through the paper fibers, it could not be erased or blurred by scraping or washing.

Line Art
Line art images are typically flat looking with few if any shades of gray. A logo and pencil drawing are typical examples of line art images. Contrast with contone image.

Linearization
Adjusting, or calibrating, a scanner so that it will capture grayscale values with their proper values. For instance, a linear scanner will create a 35% pixel when it "sees" a 35% grayscale value. A non-linear scanner will capture grayscale values other than 35% when it "sees" a 35% grayscale value. Typically, uncalibrated/ nonlinear scanners create pixels which are darker than the original grayscale values of an image. For example, an original 50% grayscale area may be captured as a 60% gray by a nonlinear scanner.

Matting and Framing
Matting is often recommended for works of art or artifacts that are intended for exhibition. Mats are usually composed of a window and backboard of 4-ply 100% rag-board or lignin-free archival board. The object is attached to the backboard with hinges of Japanese paper and starch paste. Once properly matted, an object is ready for framing.

An object can be placed into a new frame or it can be put back in the existing frame. The old frame may have to be enlarged so that the edges of the object do not come in contact with the wood. Some frames must be made deeper to accommodate a mat, glazing, and the backing layers needed to protect the artifact. Frames can be made deeper by building up the back of the frame with strips of wood screwed in place. Ultraviolet-filtering acrylic or glass is recommended as a glazing. Please note that acrylics carry a static charge so is not appropriate for objects with powdery or loosely-attached media such as pastels.

Mending
Tears are carefully aligned and reinforced on the reverse with thin strips of Japanese paper and a starch-based adhesive. With double-sided documents, the thinnest papers are used to avoid obscuring writing on the reverse.

Midtone
Tonal range of an image which centers around 50% gray scale. Grayscale values in an image roughly in the range of 35% to 65% gray scale are considered to be in the mid-tone region.

Multiple Scan
Scanning multiple images in one pass with each image having its own separate scan settings.

Mold and Insect Treatment
Mold and insect deposits are best removed mechanically. A small vacuum aspirator is recommended for lifting mold. It is not always possible to remove all traces of mold, since the mycelia may deeply root in the paper. Fumigation, once a standard treatment for mold and insects, is now seldom done. This is because chemical fumigants can have adverse effects both on works of art and on people. Moreover, fumigation is ineffective in the long run if the objects are returned to storage conditions that promoted mold growth in the first place.

Neutralization
Adjusting, or calibrating, a scanner so that neutral portions of an image will be captured as neutral, rather than having a color cast. A neutral area will have equal RGB values. A non-neutral area will have unequal RGB values. For instance, a neutral 5% gray area should have RGB values each equal to 5 %.

Optical Resolution
The true or hardware resolution of an image capture device such as a scanner. Using the hardware resolution of a scanner results in faster and more accurate scans. Scanning at other than the optical resolution of a scanner results in interpolated pixels, which are manufactured and therefore less accurate.

Output Resolution
Resolution terminology used to refer to images which have been recreated or printed as spot-based and dot-based images. Usually expressed as the number of spots or dots per inch (dpi) or halftone dots per inch or lines per inch (lpi).

Overcasting
A sewing operation. Section leaves are bound together by thread. Sometimes called *"whipping"* or *"whipstitching."*

pH Testing
pH is a numeric scale used to express a solution's acidity or alkalinity, terms that refer to concentration of hydrogen ions. The greater the concentration of hydrogen ions, the more acidic the solution; fewer hydrogen ions and a solution is considered alkaline. The pH scale ranges from 0 to 14. Seven is the mid-point at which a solution (such as distilled water) is neither acid nor alkaline. A pH lower than seven indicates acidic solutions, while pH values higher than seven represent alkaline solutions.

Photographic Activity Test (PAT)
This is a worldwide standard (ISO Standard 14523) for archival quality in photographic enclosures. Developed by IPI, this test predicts possible interactions between photographic images and the enclosures in which they are stored. The PAT is also used to test the components of enclosures, such as adhesives, inks, paints, labels, and tapes. The test involves incubating materials in temperature and humidity-controlled chambers to simulate aging and takes from four to six weeks. After incubation and sample evaluation, a final report is provided.

Pixel
Basic building block of a bitmap image.

Polyester Film Encapsulation
This method of protection and reinforcement is most appropriate for archival materials. Encapsulation sandwiches the object between two sheets of polyester film (3 or 4 mil). The envelope is sealed at all edges ultrasonically or with heat. Encapsulation is not usually recommended for materials that are not deacidified.

PPI (Pixels Per Inch)
The most common term used to express correctly the resolution of a digital image. Ppi refers to the number of pixels per inch both horizontally and vertically in an image. See *input resolution*.

Preservation Administration
It is the corpus of actions taken to extend the life of information to serve the purpose for which the information is maintained. Preservation administrators focus on such matters as the environment (levels of temperature, humidity, and light) in which records are maintained, disaster preparedness, and ways of handling material compatible with extending its life. It is identifying and implementing measures that, taken as a whole, extend the useful life of archival repository holdings at the lowest cost.

Preview Scan
Low resolution, usually 72 ppi, overview scan which is done at the beginning of a scan session. This previewed image is used to locate and crop the image to be scanned and set up the scanner for the final high resolution scan. See *Final scan*

Production Master
Production master files document the image at the time of scanning, not what it looks like if restored to original condition. Additional versions of the images can be produced for other purposes with different reproductions renderings. Any techniques done in a traditional darkroom may be done in the digital images (contrast and brightness adjustments, dodging, burning, sporring, etc).

Quartertone
Tonal rage of an image which centers around 25% gray scale. Image grayscale values in the range of 15% to 35% gray scale are considered to be in the quartertone region.

Records
Documents in all media written, received, or accumulated by organizations and individuals for the purposes of carrying forward and documenting life.

Records Management
An administrative function within an organization designed to: (1) have information at the right place at the right time in the right form for efficient functioning; (2) manage in a fiscally responsible way all those records that are continuing to fulfill the purpose for which they were created; (3) protect the integrity of the organization and its clients.

Removal and Replacement of Backings
Where a backing is destructive or inadequate, we recommend separating it from the object. Sometimes the backing is removed in a water bath. If water-soluble media are present, mechanical means are necessary. Use of steam or careful application of moisture can assist. Removing fragile paper from a solid backing is time consuming and costly. It is often difficult for a conservator to know how long a backing removal will take.

If necessary, the removed backing is replaced with Japanese tissue or paper of appropriate weight. These are adhered with a diluted starch-based paste, may be handmade or machine-made of high-quality cellulose fibers such as pure kozo. The weight of the paper chosen will vary according to the size and weight of the artifact and the extent of the damage.

Removal of Old Repairs
Old repairs have often been made with materials harmful to paper, such as those with unstable or staining adhesives. Water-based adhesives are removed in a water bath, with moisture, or with steam. Sometimes, synthetic adhesives and pressure-sensitive tapes must be removed with an organic solvent.

Res
A less commonly used input resolution term which designates the number of pixels per millimeter in a digital image.

Resolution
The number of an image's components per unit distance, such as dots per inch (dpi) or pixels per inch (ppi). Distinguish resolution as either input or output resolution. See *Input resolution* and *Output resolution*.

RIP: Raster Image Processor
The hardware and/or software device through which all document components, including line art, contone images and text, are processed in order to convert them into printed images.

Scan Mode
Determines the pixel depth and color space in which an image will be captured or converted, including: 1-bit (B&W lineart), 8-bit (grayscale), 24-42-bit (RGB), 32-bit (CMYK).

Scanner
Capture device which converts analog images into digital pixels.

Shadow Point
The darkest portion of an image which still has details in it. Typical range in which a shadow point will fall is 85% - 100% grayscale.

Specular Highlight
A featureless highlight portion of an image containing no details. See *Diffuse highlight*.

Spot
The smallest block of a text or line art image. Often expressed as dpi (dots per inch). A 300 dpi laser printer has spots which are 1/300" across, while a 2400 dpi image setter has spots which are 1/2400" across. See *Output resolution*.

Stain Reduction
Stain reduction that does not respond to washing can sometimes be done by bleaching. This is a time-consuming and tricky operation. It is warranted only in the case of disfiguring staining on objects of aesthetic value. Bleaching may be done by exposure to artificial light or with chemicals. The former method is preferable since no bleaching chemicals are needed. Some stains, however, require the use of chemicals.

Chemical bleaching of paper is considered safe if an appropriate bleaching agent is used under controlled conditions and thoroughly removed from the paper after treatment. Chemical bleaching is followed by thorough water rinsing of the treated area. Whenever possible, the chemical is confined to the area of stain, but sheets with overall staining or discoloration may have to be bleached overall.

Stainless Steel
The generic name commonly used for that entire group of iron-base alloys which exhibit phenomenal resistance to rusting and corrosion because of chromium (Cr) content. Contents of Cr exceeding 10%, with carbon (C) held suitably low, make iron effectively rustproof.

Streamline
An Adobe Inc. program which converts pixel-based images into vector-based line art. As in "streamline an image."

Surface Cleaning
Superficial grime, dirt, and soot are removed from paper with a soft brush or, where possible, with a latex sponge, powdered vinyl eraser, or soft block eraser. Surface cleaning fragile artifacts and works of art requires sensitivity and experience, and is best done by a conservator, but non-rare material that is reasonably sturdy can be cleaned by a non-conservator. Instructions for surface cleaning are given in the NEDCC leaflet, "Surface Cleaning of Paper."

Accretions, including insect deposits and mold growth, are best mechanically eliminated by a conservator. A small vacuum aspirator is used for removing mold. It is often not possible to eliminate the staining caused by mold.

Three-Quartertone
Tonal range of an image which centers around 75% grayscale. Grayscale values in an image roughly in the range of 65% to 85% gray scale are considered to be in the quartertone region.

Tone Compression
Setting the highlight and shadow points of an image which will determine where the captured grayscale values will be placed in an image.

Turned Grain
Leather that has been dampened and has had its grain turned over with an agate polisher is said to have a turned grain.

Unsharp Mask
A software filter used to increase the sharpness or focus of an image. Most digitally-captured images need to have sharpening applied in order to return an image to its original sharpness.

Washing
Many documents and works of art can be washed in water. When desirable, all media are tested for sensitivity. When the materials permit, objects are immersed in filtered water. On occasion, a carefully controlled amount of an alkaline material is added to the water to raise the pH to facilitate the cleaning process. This must be carefully controlled, as excessive alkalinity can damage paper and media. Soluble artifacts are not be immersed, but may be partially washed, float washed, or washed on a suction table or wet blotters. Washing removes dirt and aids in stain reduction, and reduces acidity. It can relax brittle or distorted paper. Certain artifacts may benefit from washing even when this procedure does not reduce discoloration to any noticeable extent.

Whipping, or Whipstitching
Same as *overcasting*.