Preservation Primer, Part One:
The Basics of Preserving Our Physical Artifacts

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Terminology

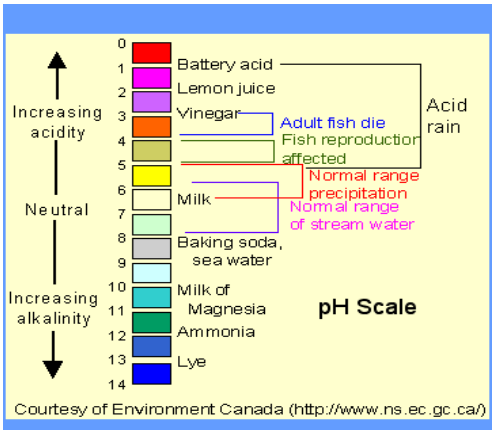
Acid is commonly found in many different papers and paper products. It is frequently found in the manufacturing process for paper and paper products. Acid can make the surface of paper better for writing, printing, or photocopying. The problem with acid and acidic content in paper and other storage products is that the acid gradually breaks-down the paper or other materials. It contributes to disintegration or at least deterioration of the original item. That is why acidic paper becomes brittle and discolored over time.

Acid-free is a term applied to materials that have a neutral or basic pH value of 7. See the scale below. Essentially, acid-free materials do not contain acidic chemicals that break down storage and publication media. The symbol for acid-free paper and materials can be seen to the right. When purchasing from hobby shops, office supply stores, and the like, one should look for that symbol on materials that don't specifically indicate or say "acid-free." Other terms associated with or used instead of acid-free are conservation-grade (acid-free, buffered paper made from wood-based pulp) and archival-grade or museum-grade (cotton rag paper made from cotton pulp).

Buffering is a process through which non-acidic, specifically alkaline, materials are introduced into the paper or the container making processes to cancel or neutralize the effects of acid.

Lignin is a chemical found in wood, wood products, and wood byproducts. It is in the wood pulp found in some paper and paper-making processes. Lignin makes paper stronger. Over time, lignin breaks down and releases acid, making the paper turn brown and become brittle.

pH Neutral is when a substance is neither acidic nor base/alkaline, with acidity and alkalinity being the extremes that describe chemical properties of compounds, materials, etc. pH neutral is actually "7" as evidenced on the scale to the right, not zero as some initially think. The best is when materials you use with documents and artifacts are pH neutral.



Preservation/Conservation Basics

- Never execute a process that cannot be reversed.
- Never store materials being preserved near a heat source or in an area susceptible to the dramatic temperature and humidity changes caused by weather and/or HVAC equipment. Constant and/or consistent temperature and humidity are much more important than optimal temperature and relative humidity conditions.
- Cleaning documents and artifacts is typically the first step, and an important step, in the preservation/conversation processes.
- 21st century repairs typically should always include a digitization component. Before executing a paper repair, place the document back together without fastening and make a digital copy. The phrase that pays: Be wise and digitize!

- Not all torn or "separated" documents need to be repaired or re-attached. There are instances when keeping the pieces together and well cared-for is preferred, and actually helps retain the value of the entity.
- Containers or enclosures for every type of document or artifact should be acid-free/pH neutral, lignin-free, and buffered. Recall though, that some container is better than no container.
- Using sprays and solutions to de-acidify documents typically should only be done by a professional. De-acidification processes are largely overrated. If these processes are not done well or properly, documents can become stained or otherwise damaged. Many mistakenly expect de-acidifying processes to reverse deterioration that has already occurred. This will never happen. In addition, even when executed by professionals, the process can darken many documents.

Preserving Textual Items

Paper: Paper is a rather stable medium, robust enough to last many hundreds of years if maintained properly, handled with care, and not highly acidic. The biggest threats to paper include:

- environment--includes dampness, mold, mildew, and changes in temperature and humidity
- careless, rough or improper handling--includes improper storage and/or packing as well as the use of metal fasteners such as staples and paper clips
- insects and pests--includes spiders and rodents
- light--any ultraviolet light including sunlight

Repairs should always be done with acid-free materials. Line-up the print on the paper along shape of the tear and position torn section against torn section. Measure the length of the tear and bind together with single piece of acid-free tape. If the tear is too large or ragged, use multiple pieces of acid-free tape, measuring each section to be taped so there is only a very minimal amount of overlap. Some consideration should be given as to whether a repair should be executed at all or whether placing the document in an archival quality folder or enclosure would be just as satisfactory or even better for the original. Duplicates of the original can be made for regular use/handling—preservation photocopying and/or digitizing.

Photographs: A clean, acid-free album or other container away from ultraviolet radiation (sun and many other sources of light) and in stable environmental conditions is the baseline for dealing with photographic storage. When dealing with bad photograph albums, the first step is to remove photographic images from albums and containers that are dirty and/or contain acid. All photographs that are in "magnetic" and/or sticky/tacky-based albums should be removed. Self-developing Polaroid photographs are only a "share" medium. They should never be considered a long-term solution or preservation medium. Images should be transferred as soon as possible.

Scrapbooks: Scrapbooks should be viewed primarily as sound storage containers for the documents, photographs, and realia they contain/house rather than entities that are heavily handled and shared at large gatherings. Aesthetics may be appealing; however, archivally sound, acid-free materials always must be the first priority.

Newspapers: By their very nature, most newspapers are intended by their publishers to last but a short period of time—keeping them for years is antithetical to the purpose for their creation. Photocopying onto acid-free paper and/or digitizing is the typically the best way to preserve many old, acidic newspapers. Preserving actual newspapers is best done by storing them flat in acid-free, lignin-free, buffered containers with as few folds as possible. Old newspapers should be stored in the dark with constant temperature and humidity, and used as little as possible. When possible, acid-free, buffered paper should be interleaved between the newsprint pages so no acidic page is touching another acidic page.

Letters and Diaries: Most letters and diaries have an understandably significant amount of sentimental value. Hence, one is often left with the challenge of preserving the original artifacts

to the highest degree possible, and making more accessible the information contained in the documents themselves. Original letters and diaries should be stored in the dark with constant temperature and humidity, and used as little as possible. Some like placing letters in Mylar sleeves. If that is done, the Mylar sleeves must be acid-free. One should not tape letters to the sleeves for centering or aesthetic purposes, even with acid-free tape. There are specialty Mylar sleeves that are specifically designed for various sized documents—these may appeal to some. Diaries should be put in enclosures, sometimes called portfolios, clam-shells and case boxes, to protect them from damage, dirt and light. To the extent possible, all letters and diaries should be digitized and/or preservation photocopied. One should explore for virtual or online locations to mount the digitized images for free—locations such as WeRelate.org, Veterans History Project, various states' memory projects, the Allen County Public Library's *Our Military Heritage* and *GenealogyCenter.Info* pages, GenWeb pages and the like.

Preserving Artifacts and Objects

- A clean artifact and a clean container are the vital basics for artifact preservation. Impurities, dirt and other particulates destroy artifacts and invite pests to damage the items and/or accelerate the deterioration process.
- Proper storage is essential in maintaining objects, preserving their value, and ensuring they are presentable for future generations. Understand the object you are preserving, appreciate how it was made and its function so that you will be able to make appropriate decisions about cleaning, restoration, and storage. For example, phonographic records, stereoscope slides, 35mm slides, and framed art should be stored so the items are "standing up" or vertical. Books on the other hand are best stored flat or only vertically with their spines down. Objects should not be loose inside their containers, but rather, stored snug with linen and cotton used to secure the object from movement.
- When cleaning artifacts of any type—from jewelry and medals to family Bibles and sewing machines—starting simple is always best. Also, it is best to start one's cleaning with a small sample of the items to be cleaned and/or an inconspicuous spot on a larger item. There are all kinds of home remedies and concoctions—some work and some can do great harm. Care should be taken when executing any cleaning process that is an unfamiliar concoction or folklore. Making an entity "bright and shiny" may not be best for the object.

Preserving Digital Data

Program data: Continue to update and upgrade any programs through which you store and access your digital data. If a program allows you to export your data (or even portions of your data) into other formats and program files, develop a schedule to do so. Look for programs that allow you to store data in a wide variety of formats, e.g. DOC, RTF, TXT; TIF, BMP, GIF, JPG; etc. "Special," proprietary software that does not allow for data export should be avoided at nearly all costs.

Image format: There continues to be considerable discussion around this topic. It is best to go with this historical standard: uncompressed TIFF file at 300dpi/ppi or greater for archiving. JPEG at 75dpi to 300dpi is acceptable for sharing images, not archiving them. There should be precious little or no concern about storage space as the cost for digital storage and the associated redundancies (back-ups) continues to fall like a stone.

Back-ups: LOCKSS—Lots of Copies Keeps Stuff Safe and . . . refresh, Refresh, REFRESH. It does make a difference. Store your backups in different locations and on different formats: online/cloud, DVD, External HD, Flash Drives, and whatever is developed next. As previously stated, the cost of memory continues to plummet.

Suppliers of Preservation Materials

- Brodart <www.shopbrodart.com>
- Conservation Resources <www.conservationresources.com>

- DEMCO <www.demco.com>
- Document Preservation Center <www.cohascodpc.com/dpc>
- Gaylord Archival <www.gaylord.com>
- Hollinger Metal Edge <www.hollingermetaledge.com>
- Light Impressions <www.lightimpressionsdirect.com>
- Talas <www.talasonline.com>
- University Products <www.universityproducts.com>

Sources of Preservation and Conservation Advice

Library of Congress <www.loc.gov/preservation>
National Archives and Records Administration <www.archives.gov/preservation/holdings-maintenance/supplies.html> and <www.archives.gov/preservation/family-archives>
Northeast Document Conservation Center <www.nedcc.org>

Northeast Document Conservation Center's Quick Reference: Environmental Control

- Create a stable environment. A good target is 70 degrees Fahrenheit and RH below 55%, but work within your means.
- Avoid storing items in the attic or basement.
- Avoid storing material along outer walls, which tend to experience temperature fluctuations.
- Avoid storing items near heat sources.
- Avoid storing items near or below water sources.
- Store material at least four inches off of the floor to reduce risk of damage from floods and leaks.
- Use blinds and curtains, and keep lights off, to reduce fading and damage from light exposure.
- Dust and vacuum regularly to discourage pests.
- It is impossible to avoid all sources of risk, but awareness of possible hazards will allow you to prepare for and respond to any problems that arise.

Conservation and Preservation Keys—Review

- Ensure items are clean and are able to remain clean.
- It is good to breathe.
- Water is typically not your friend.
- Ensure that everything touching an item is pH neutral.
- Do no harm! Don't engage in a process that cannot be undone.
- Simplest is usually best.
- Digitization is a fine option for disseminating data and preserving originals.