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If the future is now, can the past also be now ? The developing relationship between conservation and scientific evidence

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Abstract:

This paper will discuss the decision between conservation and loss of evidence that can be obtained from an untouched original. The forensic capacities of today and what might be possible tomorrow make the decision to conserve an historic document much more difficult than in the past. Where once conservation was the decision of choice for valuable historic materials, today that decision is much more complicated. What can be lost by washing paper? Fingerprints that might reveal information about past owners? Dirt that might reveal past locations of the document? Analysis of hide that might reveal where the leather came from and when. Analysis of wooden boards that might show where the wood came from and when it was felled? The forensic tools of today have changed the developing relationship between collections conservation and digitalization. There is a current and still developing process for conservation and digitization. How do you decide what to conserve and what may you lose in the conservation, that is what evidence is removed that might be used now and in the future to determine more about the document in hand. For many years it was thought that conservation was the best means of preserving a valuable volume, but today with scientific methods and non-damaging equipment that can capture information from the very paper fibers it may not be best to do conservation which can change the chemical foundation of the historic paper. It may be better to safely house a damaged volume for study using such instruments as hyperspectral imaging. With digital copies of volumes now available for researchers to compare and investigate multiple volumes of the same title, or parts of a title that now can be brought together, the decisions for conservation versus digitization are much more complex.

Keywords: *conservation, evidence based, forensic tool, scientific method*

The Library Of Congress Preservation Divisions and our custodial curators who manage our collections work together to provide both access and protection of our collections. We have a

conservation division that cares for rare and special collections. Within my division we have binding and collections care, again for conservation of damaged materials, and we chemically treat acidic paper based materials to neutralize the acid and so slow the deterioration, and as part of the Directorate we have the Research and Testing Division where we do research on collections to both assure their stability, to further their stability, and to verify their authenticity. Today I want to talk about the balance between conservation, which changes the original to make it mechanically or chemically sound or binding to prepare materials for exhibits versus doing none of that, but keeping the original for research and what we might discover within the item itself. When I was considering this topic and trying to come up with the title I was thinking of history and the loss of historical data. Today with many forensic and electronic tools such as 3d printing at our disposal we can recreate in some form what has been destroyed maliciously or from natural causes such as floods and fire. But even without trying to damage we may inadvertently destroy useful information contained in the piece we have before us through cleaning away evidence that might have been valuable to determine the item's history. But before I go into this topic with examples, just a little about my Institution, the Library of Congress, the national library of the United States.

Library of Congress Capitol Hill Buildings include the Jefferson, Adams and Madison Buildings. In addition there are Taylor St, Ft. Meade high density storage, National Audio Visual Conservation Center Culpeper, Virginia and six Overseas Offices in Rio, New Delhi, Nairobi, Cairo, Jakarta, and Islamabad
<http://www.loc.gov/visit/maps/>

The Jefferson Building of the Library of Congress was built in 1897 and holds about five million volumes as well as reading rooms and a theatre for public performances. The Jefferson Building is still considered to be the most beautiful building in Washington DC. The Adams Building holds about 10 million volumes. It is a fine example of Art Deco style with a twist, which is called Greco Deco. Built in the 1980s the Madison Building houses most of the Preservation Directorate labs, and by labs I mean conservation labs and research and testing laboratories where we use nondestructive forensic and chemical tools to learn more about our collections. The building is also a presidential memorial.

The mission of the Library of Congress has three parts. The collection supports the research for scholars all over the world and the Library administration presents awards to celebrate human achievement such as the appointed Poet Laureate. In addition, the Library administration presents a vast array of programming to serve the American public and the World. While many programs happen in our buildings we often also provide them via webcast or through our Utube channel <http://www.loc.gov/about/mission.html>

The Preservation Directorate Mission is to assure long-term, uninterrupted access to the intellectual content of the Library's collections, either in original or reformatted form. In various processes preservation activities relate to the encyclopedic collection we collect, use, and preserve on behalf of Congress and the American people. Not everything is a Book.

So how do we consider how best to use our non-destructive forensic capacity while still conserving our objects? When you wash paper it can wash away valuable evidence, but if we don't wash some paper there could be a premature aging of the object. The same with chemically treating paper-based materials such as deacidification. The very chemistry of the paper has been altered and so precludes useful chemical analysis of the paper pulp. Slowing degradation is what preservation has long been about, not just making something more

mechanically sound, which we also do, but taking action to slow the deterioration of the very essence of the thing. The first thing we do with a highly valuable item is to do nondestructive analysis, such as hyperspectral imaging. This helps date, authenticate and provide data about the chemical composition of the object to enhance the decision making for conservation and display. It also allows us to document the current condition of the piece and to determine if any additional information can be learned from further testing and analysis. That is testing can unearth earlier conservation treatment. That said there are many items that we own that we don't test because there are just too many items so decisions on where to put our research resources is a constant conversation.

When the Waldsemuller map came to the Library there was considerable testing done to determine the best means of display and to document the paper type and the ink which helped determine the appropriate display criteria such as lighting and mounts. With a deeper knowledge of the object there can be an informed discussion and decision about how best to store, display and conserve the object. Do we do this with all objects? We don't have the staff or time to do that so we have to make informed decisions with what we expect for objects that aren't researched in this manner. If there might be value in waiting for more time to research, and if that time won't further damage the item, if we can stabilize it then that might be the decision instead of conservation treatment. We might prefer to house the item.

Through the understanding of unique objects we can make correlations with similarly produced objects and so decide on best practice for a whole class of items based on age, materials, and similar condition. If we start conservation treatment before that consideration then we may lose the opportunity to ever discover more about the original object. I say original object because every time a corrective action is taken, whether cleaning, or removing dirt we change the object from its current state. Original when an item comes to the Library may be far different from what it was when it was first created. It may have been rebound, washed, cleaned, damaged, any number of conditions which has changed it into the piece we have in hand. And all those changes help to document the life of the object.

It is the case that the Library of Congress does conservation on many items. We have conservators who rebind, clean, reassemble damaged scrolls, books, papers but we make that conscious decision knowing that possible research data will be lost in that process. When we consider conservation for materials that have had previous conservation, and that often happens, then already the original is not the same as it was when first created, In this case, such as a rebound volume, we don't know about the original binding so making the volume useable or more appropriate for a display by returning it to a facsimile original binding style may be the best thing. But when a volume is damaged and in the original binding then the decision may well be to retain that condition and simply house the volume to protect it in its current state. This then allows for future analysis that may tell us more about the original materials used, or even where the object has travelled before coming to us.

For institutions without research labs, researching what has been discovered about similar objects, similar in time, construction and materials is helpful to inform the decision of determining whether the past needs to be discovered and thus to avoid destroying evidence. The decision to treat may be warranted to extend the life of the object as it is now and into the future.

The Conservation staff who have access to forensic equipment does not mean every volume is kept as is, rather that there is an informed conversation between the curator and the conservator

and the conservation scientist to help determine the next steps, whether to house and retain as is, whether to do analysis to assist in conservation treatment decisions or whether past investigation of similar objects can be used to decide conservation treatment now.

Size exclusion chromatography is a process we use which takes a tiny sample, but which provide a wealth of information about the carrier such as paper. SEC gives us the distribution of the sizes of the polymer chains in cellulose – how many big molecules there are and how many small molecules there are in a single sample. The value of this processing allows direct analyze of the cellulose with a strong correlation to material degradation and reveals small changes undetectable on a macro/physical level.

Conservation treatment is not necessarily the first line of defense in prolonging the life of cultural heritage objects. We know that controlled climate, temperature, humidity and light are important in slowing degradation. Safe storage under controlled conditions may be the single most important step in “saving” the past right now and for the future. Using information available or discoverable is the best way to determine those preservation decisions to safely house and perhaps not conserve in order to allow future options for exploration of discovery about our collections.

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References

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