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Mass Deacidification: a Preservation Option for Libraries

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Abstract:

The library and archive worlds are inundated with acidic paper. Institutions have been trying to ensure the long-term preservation of items on acidic paper for years. Now there are dependable, effective, reasonably priced commercial vendors that can neutralize the acids without time consuming and limiting selection criteria. But how to chose where to start and what to send? This paper outlines the physical selection criteria being used by most institutions in the United States sending materials to a commercial vendor for mass deacidification. Discusses different approaches in how to select where to start deacidifying in a large collection and what other workflow issues must be considered when including mass deacidification as another preservation tool in preserving our cultural heritages.

The library and archive worlds are inundated with acidic paper. While it is true that many areas of the world have made great strides in producing alkaline paper, there are still many other areas that are producing paper that would not be considered a good choice for permanence. Ultimately this acidic paper becomes brittle and unusable. Unfortunately this acidic paper has been and is used in a wide variety of materials that libraries have acquired in the past, are still acquiring, and will continue to acquire into the future. All acidic papers do not become brittle at the same rate, but it is know that even the most flexible and whitest of these papers left in an acidic state will deteriorate and become brittle. To be able to arrest or at least slow significantly the embrittlement of our important cultural resources is central to the fulfillment of the a library's

mission which is to collect, organize and hold in perpetuity materials representing our cultural heritages.

How can an institution ensure the long-term preservation of these at risk items? Preservation and conservation work on single items is extremely expensive and carried out on only the most important and valuable works. Even then there is an awareness of the limited resources of time and money. What other options are there for the large numbers of materials that also contribute to our cultural heritages? Reformatting options such as microfilming and digitizing are good for saving the intellectual content. The drawback is that these are expensive on a per volume cost. The estimated cost to microfilm an average volume is $125 U.S. dollars. Once filmed, there is the cost of maintaining the negatives and a positive viewing copy as well as the machines to view the film. Digitizing, while generally less expensive, can still cost about $50 U.S. dollars per average volume. This is the cost for image capture and minimal processing. One needs to add to that the cataloging costs associated with the creation of metadata and the maintenance of digital files as well as the work done on the files to make them easily accessible either via the web, a workstation, DVD or CD. Finally, in the case of reformatting, whether microfilm or digital, nothing has been done to preserve the original item. In fact, in some cases the actual act of capturing an image either digitally or on film may have caused some damage to the original. If all that is being insured for long-term preservation is the intellectual content for vast groups of items, how will libraries address the needs of those researchers whose studies require the original object?

Libraries have been struggling with this for decades and there have been a number of attempts at developing a mass deacidification process. However, previous processes:

- have not been effective,
- were too risky to the items being deacidified and/or to operators,
- were too expensive, or
- had complex selection criteria.

Individual institutions, for the most part, have not felt it cost effective to develop in-house capabilities for mass deacidification and commercial vendors have had only limited success until recently. Today in many institutions commercial mass deacidification is now considered another tool available for the long-term preservation of research materials along side other options, such as: conservation treatment of single items, binding of soft cover volumes, staff and user education, and the use of good storage conditions. The evolution of mass deacidification to this state has happened because we now have:

- Dependable and effective methods of deacidifying a number of items at a single time a minimum amount of handling or preparation.
- Straightforward selection criteria that are easily understood by all levels of staff that results in consistent identification of what can or cannot go for mass deacidification.
- Commercial vendors that can process large numbers of items at a single time resulting in quick return of items to the institution and
- Efficiencies of scale that are reflected in reasonable per volume costs.

Having all the conditions met has been key, but once the efficacy of a method was established the two conditions that tipped the scales at institutions I am most familiar with has been cost and

selection criteria. It is my personal opinion that regardless of what the mass treatment is unless it can fit into the ever tightening institutional budgets and be incorporated into the workflow with minimal strain, the treatment may take a very long time to become a preservation option available in an institution.

Key to the workflow issue is the selection criteria; both the physical condition of the volume as well as from which collection the volume comes. In the United States most institutions are using a very straightforward physical selection criteria:

- The text block has a pH of 7 or below. The pH is taken with the pH pen;[1] usually on a page located at the back of the volume and near the volume's gutter.
- The dominant paper in the text block is not glossy nor does it have coated stock. A few pages of such paper in a text block, such as one finds used for photographs or illustrations, is fine but if half or more of the volume is made up of this type of paper the volume is not considered.
- The paper is flexible. At New York Public Library (NYPL) and Yale University Library we are not doing books that have already become brittle. Though some institutions are doing brittle items to try and keep them from getting any worse.
- Finally, the text block must be sound—not split or having loose pages. However, the vendor with whom we are dealing did indicate that this was not necessarily a reason to de-select a volume which otherwise meets the criteria.

These are very broad criteria and every institution has thousands, perhaps hundreds of thousands, of books that are likely to meet these criteria. The key therefore is where to start. What I intend to do is describe different approaches that have been taken in selecting items for mass deacidification. Then I will discuss how and where the tasks required for this mass treatment are incorporated into institutional workflows.

Over the past few years I have discussed mass deacidification with a number of preservation administrators at various institutions across the United States. The Library of Congress is the only institution I know that has consciously decided to deacidify all its acidic volumes and is systematically working their way through the stacks. However, even an institution that plans to do everything must decide on where to begin.

In my discussions with other preservation administrators or conservators in charge of the mass deacidification operations at other research libraries I asked how they had selected what to deacidify. At Columbia University there was a six-month survey of volumes coming thorough their shelf preparation area. This was used to identify where the bulk of acidic paper was coming from. When it came to deciding whether to do new acquisitions or volumes already on the shelf, the decision was to work with volumes on the shelf from those areas identified through the new acquisition study. The choice of where to choose the volumes from was due to workflow issues. The choice of what subject area was a result of the study and the feeling that if Columbia Library is currently receiving volumes with poor paper from a specific area, the collections on the shelf from that same area also have poor paper. So, volumes are being identified and pulled from the stacks using the physical criteria already discussed.

[1] The pH pen used contains choloropehnol red as the indicator.

At the University of Michigan the process is a bit more formal. Their Collection Management and Development Council receive a call from the head of preservation for proposals to deacidify collections. The entire council reviews the proposals and the council makes a decision. Most proposals are subject-based. Once a subject area is identified the volumes are pulled according to the physical criteria outlined.

Yale University is similar to the University of Michigan in that it requests proposals. However, the proposals come directly to the preservation department from the individual collections or libraries and the decision as to which collection is selected is done within the preservation department. Though the decision is made after talking with all the subject specialists who had submitted proposals, it does reflect a stronger influence by preservation in what is selected. Yale's method of selection seems to be the exception in that the preponderance of preservation departments tend to work directly with the collection development department or committee in identifying what collection or collections are to be selected.

At New York Public Library two pilot projects were done using two different selection methods followed by a cost analysis of both methods. In the first pilot it was decided that approximately 1,000 volumes would be deacidified.[2] The thought was to incorporate the physical selection process into the rather informal preservation review process of all newly acquired materials. This review happens in the process of preparing items for the shelf. As only 1,000 volumes were to be done, a subject area that would generate this number of volumes fairly quickly was looked for. After discussion with the Collection Development Committee the subject area of newly acquired Slavic monographs was identified. This subject area was chosen, as it is known that a large percentage of these volumes are published on acidic paper and are therefore at risk of embrittlement.

The staff members in the shelf preparation unit were trained on the selection criteria listed above. Each was given a pH pen and taught how to use it. When volumes covering the subject area were brought in for shelf preparation the staff member would test the pH of each volume as it was processed either for a spine label or in preparing it to go to receive a hard cover binding.[3] If it was acidic, a flag was inserted indicating that it was to be sent for deacidification when the shelf preparation task was completed. Those volumes that had a hard cover and had received a flag were packed and shipped directly to the vendor for deacidification. Those volumes that had soft cover bindings and had received a flag were put into a hard cover binding by the binder and then were sent to the vendor for deacidification. The time it took for volumes to be sent to the vendor for deacidification and then returned to the library upon completion of the process was about three weeks on average. Those that needed to receive a hard cover binding were first sent to the binder and then from there onto the vendor for deacidification. Combining these processes took about five weeks for volumes to be returned to the library. Each volume that was deacidified received a small label, inserted by the vendor, on the inside, lower corner of the back cover indicating the name of the vendor carrying out the deacidification and the month and year of deacidification. In addition, it was decided that a note would be entered into the online catalog

[2] This number was based on the cost per volume to deacidify and the amount of funds available for the pilot project.

[3] It is the policy of the New York Public Library that in general all books will receive a hard cover binding before going to the shelf. There are, of course, exceptions for special collection and rare book materials.

record indicating the volume has been deacidified. This was put in the 583 Field of the MARC record. A standard entry may look something like this:
$a mass deacidified $c <date> $i MgO $2spt $5 <the institution's abbreviation>

The second pilot project that was done at the New York Public Library focused on the volumes already on the shelf. Again, the question became how to choose which volumes would be deacidified or more accurately which collections should be looked at with an eye towards deacidification. Thus there was a real attempt to consider which collections held the highest risk materials. The Collection Development Committee was approached to help identify a collection and, in a sense, determine where to begin. This was looked upon as an ongoing responsibility of this committee in consultation with preservation—the identification of collections for deacidification. The committee decided to focus on the Latin American collection especially Cuban volumes. The Library had been doing extensive microfilming projects funded by the National Endowment for the Humanities (NEH) in this subject area. The microfilming projects only covered volumes prior to 1950 and included only those volumes that were already embrittled. The feeling was that there were a large number of volumes from 1950 to the present that would benefit from deacidification. And that deacidifying now would preclude the need to microfilm or reformat due to embrittlement in the future.

However, realizing there were perhaps many more acidic volumes than dollars available at the moment, the decision was to have subject specialists select the volumes from the shelves for deacidification if a volume met both parts of a two part selection criteria: first, the title was considered significant and second, the volume met the physical selection criteria listed above. It was acknowledged that this would be more expensive per volume than the previous method of selection, but the question was how much more. Again, about 1,000 volumes would be sent.

As one might expect, getting the subject specialists to take on this additional task and provide a consistent flow of materials was difficult. In the end the subject specialists spent over 30 hours identifying 1,000 volumes. (This was more than double the time taken to select the volumes in the first pilot study.) Once identified the material was pulled from the shelf and sent to the shelf preparation unit where it was packed and sent to the vendor. After deacidification the volumes were returned to the shelf preparation unit where the volumes were inspected and then returned to the shelf. Except for not needing to put hard cover bindings on any volumes and the fact that a subject specialist selected items, all other procedures were the same as for the first pilot project.

The per volume cost for the first pilot project's entire process including the deacidification, but not the hard cover binding, was on average $16.20 in 2003 U.S. dollars. The make up of this average cost was predominately the cost of deacidification itself and the shipping. However, $1.05 U.S. of the total covered staff salary associated with: initial review and selection, packing and shipping, inspection of volumes upon return from the vendor and the cataloging entry into the 583 Field.

The deacidification cost of the volumes in the second pilot at New York Public Library was slightly higher as the volumes were larger in size. However, the selection costs for the volumes in the second pilot had almost tripled. The selection cost had gone from around 35 U.S. cents per volume in the first pilot project to around $1.00 U.S. per volume in the second pilot project. This

meant that overall processing costs for this second pilot project was $1.65 U.S. compared to $1.05 U.S. in the first pilot project. But more to the point, the hue and cry raised by the subject specialists in having to take on this responsibility and the feeling that the results of, in theory, doing the most important works in a given topic were not worth the effort. It was decided that simply using the physical criteria to identify volumes needing deacidification within a targeted collection was absolutely valid.

Currently, the New York Public Library is in the second year of a three-year cooperative state grant to deacidify materials from the period of 1950 to 1971 in its Humanities and Social Sciences collections. It will do about 1,700 volumes each year for the term of the grant. Columbia University, New York University and the University of Rochester are also participating in this grant. The grant is expected to result in each institution deacidifying approximately 5,100 volumes over three years. The physical criteria for selection are the same for all the participating institutions. Each has identified a different subject to concentrate on.

When it came to where the volumes were chosen from in a given collection, except for New York Public Library's first pilot project, those institutions queried seem to choose volumes already on the shelf rather than new acquisitions. The reason for the choice had to do with workflows. It was easier to get a smooth, efficient workflow using volumes already on the shelf.

When it came to the various tasks of pulling, packing, shipping and receiving the volumes back from the vendor, each institution put it in an area that was familiar with these issues. For New York Public Library and Columbia University this is being handled by the shelf preparation unit, which also prepares volumes to go to the binder.[4] These units are regularly packing, shipping and receiving volumes from the binder. At the University of Michigan a separate Mass Deacidification operation has been established within the Conservation Services unit. Though, again, this is a unit that deals with binders and, therefore, is familiar with all that is entailed in the shipping of volumes. This placement of the operation was true in almost every institution contacted. Though at Yale University the shipping of volumes for deacidification is handled in the unit that is responsible for coordinating our microfilm operation. As an outside vendor does all our microfilming, this unit is also familiar with packing, shipping and receiving volumes.

Finally, the last task associated with the deacidification of volumes has to do with the recording of this activity in the MARC record. Not all institutions are doing this, but many are. Having the information in the local catalog is thought to be useful if there is a reason to examine volumes that were deacidified. An online search of the online catalog can identify all the volumes deacidified or a subset of all the volumes deacidified defined by time or vendor. Having this information in one of the national databases is open to discussion. Some institutions insist they don't care if another institution has deacidified that institution's copy, as it will not influence the decision as to what if anything will be done with their own copy. Regardless, there is an attempt to standardize the entry in the 583 Field and an ongoing discussion of whether this goes in the Item Level Record or in the Bibliographic Record. Those issues are for a separate discussion. What is relevant to this discussion is this activity, when it is done, is being done for the most part in the unit that is shipping and receiving the volumes; not in cataloging. The entry into the 583

[4] In the United States putting hard cover bindings on newly acquired library soft covered volumes is done, for the most part, by outside binders referred to as commercial library binders.

Field can be done quickly. NYPL had catalogers do this entry for the first pilot. However, the catalogers found it a trivial task that interrupted their workflow. Subsequently the task was put in the unit responsible for preparing packing slips and charging out the volumes though the online circulation system. The staff member was already dealing with the bibliographic records so this became a task to include in the process.

In each of the institutions where mass deacidification has become a viable preservation option there has been an effort to follow established patterns when it comes to the decision-making and workflow. Each task that made up the mass deacidification operation was looked at and in fit into a unit or workflow that was already doing the task but for other reasons. Whether it was the collection development department or the person handling the shipping and receiving of volumes—the task was not new. What was new was the end result of the series of decisions and tasks. This helps to keep costs down and makes use of staff knowledge and skills in organizing tasks. Important considerations that can contribute to the overall success of incorporating new options into an operation.

Are mass treatments a priority? Definitely. It is only through the continuing use and development of appropriate mass treatments that we will be able to ensure the long-term preservation of much of our written heritage as the amount of material that requires attention could otherwise never be preserved given the human and financial resources currently available.

But we must realize that in order for any such treatment to be embraced by a large number of institutions mass treatments have to be proven as effective at relatively low cost and require a workflow that is easily incorporated into the institutions choosing to use it