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Establishing a Deacidification Regimen

as Part of Collection Stewardship

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Introduction

Preservationists have long warned about the impending loss of items because of acidic paper. Any librarian who has worked with older materials knows that this warning is compelling. The risk is even more pronounced for the Christian library, especially libraries serving small denominational colleges and seminaries, because they often contain old and rare material, such as denominational historical accounts or small-run monographs, items that secular libraries may have long since discarded. These may be the last copies of an item.

An option for non-brittle acidic material is deacidification. The deacidification process has evolved to the point where it is effective at stopping further breakdown, safe for both the person and the item, adaptable to different library budgets and collection sizes, and easy to administer as a component of library collection stewardship. This paper will provide a short, practical explanation of how to develop a deacidification regimen as one component of the overall collection stewardship.

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Background on the Acid Problem and Deacidification Treatment

Acid breaks the long paper fibers into smaller pieces, which weakens the paper's integrity and ability to withstand stress. The process is continual until the point where the paper is so degraded that it becomes brittle. As a general benchmark, everything printed after 1850 up to now can be presumed acidic. About 1850 is when paper manufacturers began to shift from using cotton and also began using milling processes that introduced acid into the fibers. Paper older than 150 years ago is often in better shape than paper from 50 years ago, for these same reasons.

The telltale signs of older acidic books are yellow paper and a sour smell. However, recent acidic books may not develop outward signs for a few decades, and by then the paper fibers have already irreversibly degraded. Items printed within the last twenty years or so, which is when the industry began responding to the problem, may have been printed on acid-free paper. "Acid-free" also called "alkaline" paper has no free acid and has a pH value of 7.0 or higher. The process of deacidification removes the acid from paper by changing the chemistry of the fibers to reach this 7.0-pH threshold.

Out of several years of experimenting with different techniques of deacidification, one process has emerged to become the de facto standard for library deacidification: the "Bookkeeper" Deacidification System, developed by Preservation Technologies, Inc. The Library of Congress in the early 1990s pioneered library efforts into deacidification by issuing requests for proposals and then investigating procedures. In 1994, the Library concluded that the Bookkeeper system was the only method that met its criteria. The Library's criteria included doing no harm to the item or labels and leaving no odor. Since then, the Library of Congress began systematically de-acidifying its "Americana" collections, and other library systems have adopted the system.

The Bookkeeper "mass" system involves treating the whole item with magnesium oxide (which, incidentally, is the same ingredient in some over-the-counter antacids) by dipping it in an inert, organic fluid medium containing the magnesium oxide. This fluid medium evaporates without harming the paper. The treatment neutralizes the item, and leaves a "reserve" of extra alkaline calcium carbonate, which acts as a buffer against later exposure to an acidic source. The "spot" treatment system is a better choice for damaged, weakened, or ephemera, and can be done in-house, with a page-by-page spray treatment.

Workflow for Implementing a Deacidification Regimen

1) Identifying Acidic Items

Identifying acidic books is the first step in the deacidification workflow. The accepted practice to distinguish acidic from non-acidic items is to use the Chlorophenol Red pen (also called the "pH Pen"). The pH Pen is inexpensively available from any library vendor, and it resembles a felt-tipped marker, except the color of the mark changes depending on the acidity or alkalinity of the paper, yellow for acidic and purple for alkaline. Touching the pen on a small portion of the text will give an accurate reading while leaving only a tiny, inconspicuous mark on the paper.

The pH Pen method requires physically inspecting each item. However, because the test involves little expertise, it is a one-time process, and the results are so important, the librarian should consider whether it is feasible to systematically assess the entire collection. If the entire collection is systematically reviewed, or even if only one portion is assessed, for example, the "BX" section of the Reference Collection, then a good practice is to affix some marker on the spine of each non-acidic item, such as a white dot, which will assist with long-term planning as well as enable easy identification later.

2) Vetting Candidates for Deacidification

Once the acidic item is identified, the next step is to determine if it is a good candidate for investing in deacidification treatment. Acid splits into smaller pieces the long cellulose chains that make up paper fibers, much like taking a long spaghetti noodle and chopping it into several smaller pieces. This continual splitting process is how the pages become brittle. Deacidification does not reverse this process; instead it neutralizes the acid, and only prevents further breakdown of the fibers. For that reason, if the acid has broken the fiber strands to the point where the paper is brittle, it is a poor candidate for deacidification.

The prevalent method to determine if an item is brittle is the so-called "four-fold test." The four fold test means taking a corner of a page from a discreet location and folding the corner four consecutive times. If the paper fails the four-fold test, that is, it pulls off the page with only a slight tug, then it is brittle. It should be marked for special binding instructions, or de-accessioned for preservation reformatting (digitizing, microform, or even a paper photocopy onto alkaline paper), or else placed into a case and removed to a controlled area, such as a rare book room with climate control and limited reader access. However, acid migrates to neighbor items on the shelf, so it is best practice to segregate acidic items away from alkaline items.

If the item passes the four-fold test, other factors nonetheless may render the item a poor candidate for mass treatment. For instance, if the binding has loose covers, or the text block contains loose, torn, or "blocked" (stuck together) pages. Minor damage or leather covers are acceptable (including those with red rot). Items that meet the library's priority, but because of a defect are poor candidates, may be spot treated on a case-by-case basis, in-house.

3) Prioritizing Candidates for Deacidification

Once identified as a suitable candidate for deacidification, the next question is how to prioritize the item. Item considerations include the rarity of the item, the availability of other copies (in the same library or elsewhere), the amount of expected use, the "value," monetary or historical. The current price to treat an average-sized book is approximately $15, and

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there is a 3-4 week turnaround. Therefore, deciding the scope of a library's treatment program is a matter of establishing priorities, which, as with any library project, emerge out of the interplay between the Library's Mission, the Collection Development Plan, and the budget.

4) The Shipping and Receiving Process

The workflow for shipping and receiving of books for deacidification to Preservation Technologies is similar to a bindery workflow. Although each library's system is unique, a reasonable method to ship is as follows: first, pull the earmarked items from the shelf, then charge them out to "Deacidification." Next, pack the items and record on the shipping slip. Preservation Technologies supplies plastic, lockable "totes," which are personalized with each library's identification, and numbered; each tote also contains packing material, and can safely ship about 10 average-sized volumes. A library can ship one tote each month, or dozens, depending on the scope of the project.

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At the time of treatment, Preservation Technologies can mark each item (or the library staff can do this later) by affixing a small white dot on the spine. This brings it into accord with the dot placed during the assessment phase. A small label can also be affixed inside the back cover listing the treatment source and date, much like a bindery label. When the items return they appear almost the same as before treating. A white, gritty feel may be noticeable on the item, which is the alkaline reserve. Also, if tape is used during the acquisition process, such as taping over the spine labels, it may return with a white film. The best practice is to apply tape after the treatment.

5) Bibliographic Control

The receiving process is the reverse of shipping, except an additional step should be completed. After inventory, quality inspection, and check in, the final step before reshelving the item should be bibliographic control. The fact that the item was deacidified should be annotated in the MARC record. This can be accomplished by adding a MARC field 583 action note in the following form:

583 |aMass deacidified;|c200503;|iBookkeeper;|kPreservation Technologies

Conclusion

Acid is a problem because it destroys the paper in books. This problem affects the Christian library, not only because of the heightened stewardship responsibility these libraries owe to the Lord, but also because Christian libraries may hold the last copies of an historical item. The process to deacidify items has evolved into one that is relatively inexpensive, safe, and easily adaptable to almost any library workflow. Deacidification will stop the acidic breakdown of a book by neutralizing the acid and leaving an alkaline reserve, which will guard the item against future exposure to acidic sources. ✞

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