A Collaborative Approach to Collection Storage: The Five-College Library Depository

by Willis E. Bridegam

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About the Author

Willis E. Bridegam has been the Librarian of Amherst College and a member of the Five College Librarians Council since 1975. He served as the Chair of CLIR's College Committee from 1997-2000, and is currently a member of CLIR's Committee on Preservation. He was a member of the Association of College and Research Libraries (ACRL) Outcomes Assessment Task Force and chaired the ACRL College Libraries Section Committee on Standards that developed and published new outcomes-based "Standards for College Libraries" in 2000. A member of the Oberlin Group Founding Committee, he promoted the idea of sharing information and ideas among liberal arts college librarians. He helped to establish the ACRL Excellence in Library Awards program and served on its committee. Earlier, he served as a member of the Choice Editorial Board, the Editorial Board of College and Research Libraries, and the OCLC Association of College and University Libraries (ACCUL) Advisory Board .

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Preface

Managing collections is at the heart of the library's responsibilities. When librarians acquire materials to support current research and teaching programs, they also expect to preserve those materials for future use. In carrying out the dual responsibilities of preserving and providing access to information, nearly all academic libraries are confronting space problems, despite the promise of electronic technologies to ease the situation. Traditional solutions to the problem, such as expanding the library building or constructing more compact shelving, have become less viable as construction costs escalate and institutions of higher education strain under ever-tighter budgets.

The creation of off-site storage facilities has eased the situation for many institutions; some have even decided to create joint repositories with other institutions. The Five College Library Depository, however, has boldly taken the idea a step further. In collaborating on storage, members of the Five Colleges, Inc. (Amherst College, Hampshire College, Mount Holyoke College, Smith College, and the University of Massachusetts at Amherst) have agreed to deaccession duplicate copies and adopt joint ownership of the remaining collection. In effect, they have agreed to organize their collections as a single library to serve the consortium. Although a history of collaboration among the members created the basis for the high level of trust needed to move the project forward, the effort could be successful only after gaining the trust and cooperation of the faculty and staff of each institution.

In his report, Will Bridegam offers a valuable case study in the advantages and disadvantages of depository libraries, their economics, and the practical and political issues associated with their creation. As director of the library at Amherst College, he played a key role in establishing the initial offsite storage facility, as well as in broadening its service to the Five Colleges. As libraries change in response to budgetary constraints as well as developments in information technology, the Five College Library Depository model suggests new possibilities for collection management and ways for libraries to reframe their service missions. The questions facing all academic libraries—to what extent can we provide access to materials that we do not own, and which materials must we preserve for future generations—are examined in this report.

Deanna Marcum
President

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Introduction

Until the mid-1970s, academic libraries in the United States responded to the demands for increased stack space by building new facilities or by expanding existing ones. By the late 1970s, with tuition costs rising, college officials began looking for ways to reduce library expenditures. Hoping to avoid construction costs, they asked librarians to look at alternatives to open-shelf storage of library materials. In response, librarians considered the use of microforms and of off-site storage centers, or depositories, for some of the older and less-used library materials in their collections.

Although the establishment of depository libraries initially caused controversy on many campuses, the idea of storing and preserving less-used periodicals and books in remote storage centers has grown and received grudging acceptance. This paper looks at the advantages and disadvantages, the economics, and the political issues associated with depository libraries. It considers the influence electronic publishing has had on the storage of paper publications. It also describes a plan developed by Five Colleges, Inc. (Amherst College, Hampshire College, Mount Holyoke College, Smith College, and the University of Massachusetts at Amherst) that calls for deaccessioning duplicates within a jointly administered depository collection.

Alternatives to Open-Shelf Storage of Library Materials

Microforms

In the 1970s and 1980s, many librarians saw microforms as an important but partial answer to the need to expand storage space. The purchase of monumental microform sets, such as "Early American Imprints," enabled academic libraries to acquire these important research materials with a minimal investment in shelving space. Newer libraries found that they could acquire complete backruns of important periodicals without having to create thousands of feet of

shelving to store them. The U.S. Government began publishing many of its documents on microfiche, and there was a proliferation of scientific and technical reports published on microforms.

In addition to its virtue of saving space, the medium received the endorsement of preservationists. Commercial vendors and research libraries microfilmed deteriorating newspapers, the backruns of periodicals, and books printed on paper with high acid content. Efforts were made to preserve deteriorating manuscript collections on microforms. Microforms sometimes became the medium of choice for the preservation of college or university records.

Despite their advantages, microforms solved only part of a larger problem. Libraries still needed additional shelving space. Furthermore, most researchers were not enthusiastic about having to use microforms. The quality of the copying on microforms was not always good—pages were sometimes omitted or the material was not always in focus. Microfilming was generally done in black and white, making it difficult to view color and half-tone illustrations. Despite these shortcomings, librarians replaced the original publications with microfilm and discarded the original paper copies. Nicholson Baker (2000) addressed this issue in the July 24, 2000, issue of *The New Yorker*, and more recently in his book, *Double Fold* (2001), in which he took librarians to task for having discarded the original volumes of newspapers when they were replaced by microforms.

Microforms came in many different formats (for example, microfilm, microfiche, microprint, and ultrafiche), and each format usually required its own equipment. The equipment required to view and print microforms was expensive and difficult to use; it needed frequent servicing; and parts for older reader/printers were hard to find. The more elaborate reader/printers were so complicated that patrons often required staff assistance to use them. Printing from microforms was often difficult for users. Finally, reading microforms over a sustained period of time caused physical discomforts such as eye strain and neck cramps. As a result of such problems, patrons' reactions to microforms were negative.

Electronic Publishing

Electronic publishing provides a promising answer to the library space problem. The quality of electronic reproductions is usually high, images can easily be produced or reproduced in color, and text and images can be viewed on standard computer monitors and easily printed. Most important, the text and image databases can be stored on a server that is maintained by a manager of database services who is not employed by the library. The library must provide only enough space to house the public access computers and printers.

JSTOR and Project MUSE are two notable examples of electronic publishing. William G. Bowen, president of The Andrew W. Mellon Foundation, conceived the idea and promoted the development of JSTOR, as an "effort to ease the increasing problems faced by libraries seeking to provide adequate stack space for the long runs of back files of scholarly journals" (JSTOR 2001).

In 1990, JSTOR provided electronic access to the back files of 10 journals and made them available from a database at the University of Michigan and Princeton University to five libraries serving as test sites. Linking high-resolution bitmapped images (600 dpi) of each page to text files generated with optical character recognition software, JSTOR was able to provide for the search and retrieval of the journals' contents (JSTOR 2001). Building on the success of this pilot program, JSTOR expanded its database and offered it to academic libraries with a firm promise that it would remain available indefinitely. Furthermore, JSTOR offered users the important new capability of being able to search the journals singly or in clusters.

Faculty in most institutions expressed enthusiasm for JSTOR, but they were still reluctant to give up the paper journals that it duplicated. They saw the advantage of using JSTOR for reference purposes but were reluctant to read extensively from a computer monitor. Although printing long articles was an option, they cited the waste of paper and the time required. Individuals who were interested in color illustrations preferred to see the originals. In short, many faculty members still wanted to be able to see the paper journals.

Project MUSE, a collaborative effort by Johns Hopkins University Press and the Milton S. Eisenhower Library at Johns Hopkins University, was supported substantially by The Andrew W. Mellon Foundation and first presented to libraries in early 1995. With the Internet infrastructure firmly in place by that time, Project MUSE was established with a nonproprietary client/server software platform and with access provided by domain Internet Protocol (IP). The concerns of the developers of Project MUSE were to meet the needs of scholars and readers, maintain publication quality, retain the identity of the journal, and make electronic journals affordable (Project MUSE 2001). Current issues of 42 electronic journals were offered initially, and the project made a commitment to offer electronic access to these publications indefinitely. Users had the right to make printed copies within copyright guidelines, and there was no limit to the number of times a journal could be read or printed.

Since 1995, Project MUSE has added more than 120 journals from other scholarly publishers to its database, bringing the total number of publications available online to more than 160. Titles cover literature and criticism, history, the visual and performing arts, cultural studies, education, political science, gender studies, and other fields.

Many faculty members responded warily to Project MUSE's offerings of current periodicals online. When asked to give up the duplicated paper journal subscriptions, faculty asked for time to evaluate the electronic offerings. Some feared that the commitment to maintain older issues online would not be honored over time; others expressed concern that the publisher might find electronic publication unprofitable and discontinue the service. Faculty members also complained of eye fatigue from prolonged reading of online journals.

Librarians checked the commitments of the publishers to continued electronic publications, were reassured by the responses they received, and expressed confidence that Project MUSE would remain

Early Depository Libraries

Keyes Metcalf reports that cooperative storage of infrequently used books was first proposed in 1902 by Harvard President Charles W. Eliot, who was hard-pressed to provide the Harvard College Library with a new building to house its growing collection. President Eliot was unsuccessful because the librarians and faculty were "unwilling to face the inconvenience that would result, they believed, if a part of the library collections were transferred to storage." Metcalf notes that President Eliot's proposal was seriously handicapped from the beginning because of his use of the term "dead books" to describe the volumes to be stored (Metcalf 1957).

New England Deposit Library

It was not until the founding of the New England Deposit Library in 1938 that President Eliot's idea of a book depository was revived (Metcalf 1957). Writing in 1945, Robert Downs reported that the idea of inexpensive centralized storage for little-used books was discussed during the intervening years. However, only one depository library, the New England Deposit Library in Boston, serving Harvard University, Boston Public Library, Massachusetts Institute of Technology, and other institutions in the area, was created. The stated purpose of this first depository was economy of storage, elimination of duplication, and the division of fields among libraries (Downs 1945).

The Midwest Inter-Library Center (MILC)

In the 1930s, 13 Midwestern university presidents discussed plans for a deposit library, and in 1940, these presidents approved a proposal for the establishment of a storage facility as well as cooperative purchase and preservation programs. The MILC opened in 1951 with a cooperative acquisitions program—subscriptions to 40 newspapers in microfilm. In the mid-1960s, the Center changed its name to the Center for Research Libraries (CRL) and broadened its membership and its interests to include international cooperative collection development. (Center for Research Libraries 2001). By the 1980s, CRL was focusing mostly on developing a cooperative collection development and access program for little-used and rarely held materials.

The Hampshire Inter-Library Center (HILC)

HILC was another example of library cooperation in western Massachusetts, and possibly the first collaborative library depository to have liberal arts college members. The colleges of the Connecticut Valley (Amherst, Dartmouth, Mount Holyoke, Smith, Trinity, Wesleyan, Williams, and the College of Hartford) discussed central storage of large reference collections in the 1940s (Downs 1945). In 1951, a subset of this group—Amherst, Mount Holyoke, and Smith—created the Hampshire Inter-Library Center as "a joint repository for rare and little-used periodicals, serials, and monographs impractical for any one institution to acquire, but nevertheless desirable for research purposes" (Peterson 1984). In subsequent years, the University of Massachusetts at Amherst joined HILC, as did Hampshire College when it opened in 1970. Since the campuses of these colleges are within 15 miles of each other, there was a strong incentive for cooperation. This was first realized by the libraries, and subsequently by the institutions as a whole, when they created Five Colleges, Inc. in 1965 and hired a full-time Five College Coordinator in 1967.

Between 1951 and the mid-1970s, the HILC collection grew to approximately 60,000 volumes and microforms. The library directors restricted the collection to material that increased the research resources of the area, avoiding material that any of the participating libraries would not have acquired themselves (Metcalf 1957). The collection was housed initially at Mount Holyoke College. Later, it was moved to the University of Massachusetts Library, and finally to the Amherst College Library. Each host institution provided space, heat, and light without charge. Personnel costs and the expense of operating a separate book delivery service were shared.

HILC concentrated on periodical subscriptions not held by the five libraries. As journal issues were received, they were circulated for one month to each of the libraries that requested them. They were then returned to HILC, where they were available on request. The staff included the HILC coordinator, a part-time assistant, and a person who was responsible for delivering books twice a day among the five libraries (a service that has been continued).

HILC enjoyed the support of faculty and administrators from 1951 until the mid-1970s. By then, most of the member colleges had built new library space, and they had less need for a shared depository collection. The University Library, in particular, had evolved into a sizable research library that was housed in a newly constructed 26-story tower that offered space for many years of collection growth. With adequate storage space in their own libraries for years to come, the library directors were doubtful that continuing to maintain a sixth library (HILC) was cost-beneficial. Four consultants (Louis Martin [Harvard University], Donald Engley [Yale University], Richard De Gennaro [University of Pennsylvania], and David Kaser [Indiana University]) confirmed the library directors' opinion, and the HILC collection was divided among the institutions on the basis of their interests and academic strengths.

in existence. They began cataloging the electronic versions of the Project Muse journals and publicizing their availability, in the hope that more and more library patrons would find and use them.

Continuing Net Growth of Paper Collections

JSTOR and Project MUSE continue to provide leadership in the development of responsible approaches to electronic publication. They produce high-quality online electronic text of important journals and provide firm guarantees that they will maintain their databases indefinitely. Nonetheless, even with relief from organizations such as JSTOR and Project MUSE, the need to find additional shelving for ever-growing academic library paper collections continues.

There are, moreover, few signs that the rate of growth will change substantially in the next few years. The *Bowker Annual* reports that the total American book title output reached 120,244 in 1998, an increase of 982 titles, or a little less than 1 percent, over 1997 (Ink 2000). Because of a change in the way in which UNESCO collects data on book title output worldwide, the latest data are for 1996. For those countries reporting titles published in both 1994 and 1996, the increase over that two-year period was 10.7 percent (Greco 2000).

As early as 1985, John Boll predicted that "[Storage space pressures] will continue until academic libraries turn from storage and delivery and in-house use centers to switching stations that store very little themselves but primarily search electronic supplies and/or central data banks, then sift and winnow the available material for pertinence and quality, and deliver—in-house or long distance—selected, individually tailored print-outs of citations and text on demand" (Boll 1985, 15).

It may take 5 to 10 years before electronic publication gains sufficient acceptance worldwide to cause a substantial reduction in the rate of paper publication. In the meantime, librarians must provide space, equipment, and staff to make information available in a variety of formats. For the immediate future, they must find cost-effective ways to manage their still-growing paper collections.

Compact Shelving in the Campus Library: An Intermediate Step

Studies by Michael Cooper (1991) and others have shown that the number of times an item is circulated influences the cost per volume for storage. Cooper suggests that if a book circulates seven or more times in its lifetime, open-stack storage is cost-effective. An item that circulates fewer than seven times should be considered for compact or off-site storage.

With studies such as these in mind, some librarians identified portions of their collections that were less used and moved those volumes into newly installed movable compact shelving. The public still

had access to this material, but they were mildly disadvantaged by having to wait for the shelving units to open, or for other library users to vacate already open aisles. The important consideration was that the books were still available on campus. But before long, even with the added capacity provided by compact shelving, space for new books was again exhausted. Administrators and trustees were unrelenting: The libraries could not be expanded. The only remaining solution was to store materials that were unlikely to be requested frequently in off-site facilities.

Off-Site Storage Considerations

Faculty and some librarians initially decried the anticipated loss of immediate access to library materials that they had taken for granted as an unwritten condition of their employment. Typical faculty comments, and librarians' responses, were as follows:

- Faculty suggested that their teaching would suffer if they could not have immediate access to the books and periodicals they needed to illustrate points in the classroom. Librarians responded by offering to retrieve materials quickly and by offering to send them electronically to the departments of the requesting faculty.
- Art and science professors suggested that black-and-white reproductions of needed materials might not be adequate. Librarians offered to supply the actual book or periodical within 24 hours or to make it available within hours, if the person making the request was able to visit the storage facility.
- Faculty and librarians worried about the amount of their time it would take to select items for off-site storage. In response, librarians generated computer lists of periodicals by field and frequency of circulation.
- Faculty and librarians were concerned about making the library less a storage place for books and more an information service center. This was a fundamental change in emphasis for many libraries, and no one knew what the ramifications would be.

Browsing

The principal concern about an off-site storage facility was that users could not browse the off-site storage center's stacks if it did not have a subject classification arrangement for its books. Faculty fondly recalled instances of having perused "their" section of the library stacks; although arriving with no particular title in mind, they often found the "best" book for their research topic. Such things do happen, and for this reason, browsing is a useful way to test the acceptability of a system imposed through the classification process. Also, picking a book off the shelf and flipping through it is easier, and usually more informative, than is requesting a book through the library's paging system on the basis of its catalog description.

Nevertheless, as Boll has observed, subject classification, the basis on which the books in most academic libraries are shelved, has

several limiting factors (Boll 1985). First, classification schemes sometimes scatter different aspects of a single topic throughout the classification; the subject cataloger's view of a topic may be broader than the classification schedule allows. In addition, the classification schedule may have been revised since its first use, causing newer books to be separated from older books on the same subject. Finally, the Library of Congress (LC) may have classed the item geographically rather than by precise topic, or have used alphabetical rather than logical subsequences.

There are other reasons why the unsuspecting stack visitor stands a much less than anticipated chance of finding relevant materials through browsing. For example, the item may be in circulation, on reserve, in the reference collection, in a branch library, or in the special collections. If it is a government document, microform, or map, the document may not be classified at all. Nevertheless, browsing a section of the stacks is a legitimate and worthwhile way of *supplementing* a search for information. Transferring a portion of a library's collection to an off-site storage center prevents, or at least discourages, browsing, because even if materials are arranged in classification order in a storage collection and if patrons are allowed to use the collection for browsing (as is the case at Stanford University's Auxiliary Library), they will be much less likely to take the time and trouble to visit the storage facility than they would be to visit the stacks on campus.

Economics of Off-Site Storage

If library stacks are to be browsable, books of different heights must be shelved together. Such an arrangement causes a space loss of 25 to 35 percent per shelf (Boll 1985, 19). Compact but browsable shelving usually doubles the capacity of a stack area. However, shelving by size, as can be done in a closed-access collection, can triple the storage capacity. Moreover, narrower aisles, as well as deeper and higher compact shelving, can quadruple the capacity of a normal shelving area. The savings are apparent.

Two additional factors contribute to cost savings in an off-site storage collection. First, it may be possible to maintain better climate control for the materials being stored (for example, a colder temperature than is practical in stack areas open to users), thus prolonging their life. Second, the increased security of a remote, closed-access collection could reduce the incidence of theft and the associated costs for replacements.

On the other side, the substantial effort necessary to identify and transfer the items to be stored must be considered, as must the cost of changing online catalog records to indicate the new location of the material. Since changing the location of serial volumes on catalog records may cost less than changing the records for individual books, librarians often begin with the transfer of serials. Using a "global transfer" to change locations on catalog records for all books in a given classification can also provide major savings.

The Decision to Create an Off-Site Storage Center

Librarians, faculty, and students prefer to have the library materials they need close at hand, where they can readily be found. In the case of little-used items, the benefits of ease of access must be weighed against the costs of maintaining infrequently consulted materials in prime locations on campus. The decision to create an off-site storage center is usually driven by budget concerns. Consequently, it is sometimes made by the president or the board of trustees of a college or university, despite the stated preferences of the director of the library (Paquette 1990). In some cases, a decision to establish an off-site storage center may be influenced by the unexpected availability of suitable space, or by an invitation from a consortium to participate in maintaining and using an off-site storage center. Librarians who realize that their institutions are considering off-site storage sometimes look for available sites or opportunities to cooperate with other institutions with similar needs. And after the decision is made, no matter what position the director of libraries has taken, he or she should have the documentation and statistics necessary to defend the choice to faculty and staff, and should make the documentation available to everyone concerned with the decision.

The Establishment of the Amherst College Library Depository

Having opened its new, six-floor, 120,000-square-foot Robert Frost Library in 1965, Amherst College assumed it would not have to build more library space for many years. When it was dedicated, the Frost Library had about 330,000 volumes. Its shelves were less than one-half filled, and the basement was used for general storage because it was not yet needed for library purposes. However, the library was acquiring approximately 15,000 volumes per year, and the shelves on the top five floors were soon filled. The college was forced to move its general storage area to another building and to install electrically controlled compact shelving in its basement.

Because Amherst was among the earliest users of electrically controlled compact shelving, there was concern about its safety. One professor had books paged rather than browsing the stacks, because he was worried about being crushed between the movable shelves. The compact shelving provided twice the book storage space the library could have anticipated for one floor. Nonetheless, by 1989, shelves throughout the building were filled to the point where frequent shifting was required to make room for new volumes. It was apparent that the time had come to plan for the growth of the Frost Library's collections.

In November 1989, the president of the college appointed a Library Expansion Committee made up of trustees, faculty, administrators, librarians, and students. "The expansion of the Library is expected to be the single largest and most expensive construction project in the history of the College: at current estimate, its cost will exceed one-third of the annual operating budget . . . ," the president

stated. He emphasized that the Library, which is at the heart of much of the educational activity of the College, should be the best of its kind in every area, but that finances are a serious concern and cannot be ignored" (Amherst College 1989).

The Library Expansion Committee submitted its report on February 27, 1991. The report requested that 79,000 square feet be added to the current 120,000 square-foot library, and that the 27-year-old building be renovated. The committee also recommended that the trustees engage an architectural firm to outline design options for meeting the library's future needs. Initial estimates, made in the absence of architectural assistance, placed the cost of the expansion and renovation at $26 to $29 million (Amherst College 1991).

The cost estimate came as a shock to the president and trustees. In response, in April 1991, the trustees authorized the hiring of an architectural firm, Childs, Bertman, Tseckares, and Casendino of Boston, working with Linea 5 of Cambridge, Massachusetts, to prepare a report on the library's space needs. The architects presented their report to the trustees in January 1992. Confirming earlier projections, the report estimated that it would cost $29 million to expand the library by 79,000 square feet and to renovate the existing structure (Childs Bertman Tseckares Inc., Architects, and Linea 5, Inc., Associated Architects 1992).

The board of trustees asked about other needs on campus and put the library project on hold for a year until those needs could be assessed by a newly appointed campus-wide Priorities and Planning Committee, which was cochaired by the dean of faculty and the college treasurer. During the hiatus, the president asked the Library Expansion Committee to scale back the project and to create a program that would cost no more than $12 million. The committee prepared the requested proposal and presented it to the president on November 1, 1992 (Amherst College Library Expansion Committee 1992).

Meanwhile, in the summer of 1992, the college treasurer noticed that the Federal Reserve was planning to auction a 44,000-square-foot Strategic Air Command Base it had acquired from the U.S. Air Force. The base, commonly referred to as "the bunker," was located approximately four miles south of Amherst College. A portion of the bunker was built into the side of the Holyoke Range, and the balance was covered with 25 feet of rock and 7 feet of earth. In 1992, Amherst acquired the 26-acre site and the bunker for $510,000, or $11.59 per square foot. Although the College purchased the bunker for general storage purposes, it quickly became apparent that it could be used as an off-site storage center for library materials.

In March 1993, the Priorities and Planning Committee recommended that no new square footage be added to any building on campus unless a review of the use of existing facilities had indicated that there were no opportunities for their reuse or adaptation. The committee also recommended that the college begin at once to plan for and to initiate a comprehensive fundraising campaign to meet large capital needs (Amherst College 1993). In response, the trustees instructed the library director to develop a third plan for the renova-

tion and expansion of the library that would include using the bunker as a remote storage area for books. The new plan, prepared by the library director, called for renovating approximately one-third of the bunker as a depository and for transferring about 75,000 volumes, or 10 percent of the general collection and a large portion of the archives and special collections, to this off-site facility. The estimated cost was $1 million in 1993.

At the bunker, the usable old equipment was sold. Most nonload-bearing walls were removed. Compact stacks with a capacity for about 100,000 volumes were installed. A building that could have been the inspiration for *Dr. Strangelove* was transformed into a library depository ("You can't fight in here . . . this is the War Room!") (Dr. Strangelove 1964).

With space for the growth of the collection assured by the purchase and renovation of the bunker, the librarians, with architect William H. Rowe, revised the plans for the renovation of the Frost Library. The librarians also began planning for the renovation of the Keefe Science Library. According to the plan, the removal of large numbers of periodical volumes and some books would free up space for a new, state-of-the-art Media Center with 36 generously equipped, online workstations. Users could access audiovisual materials or the college's language laboratory. There would be ample space for the library's growing videotape and videodisc collections, and analog and digital videotape editing stations could be provided. The reading and work areas of the Archives and Special Collections Department would be renovated. The Technical Services Department would move to a floor that had previously housed stacks, and the entire main floor would be renovated, expanded, and wired for computers. The heating and air-conditioning system would be upgraded.

The trustees allocated about $6 million for the renovation of the Frost Library. At the same time, the library was taking a major step away from being collection oriented and toward becoming a service center. Some librarians and faculty lamented the change; others accepted it without comment. In the end, all understood that the reason for the change was cost. The trustees were unwilling to spend $29 million for the library when the college had so many other important needs.

Selecting Materials for the Depository

It was necessary to develop a plan for deciding which materials would be sent to the new depository. The goal was to identify about 75,000 volumes from the Frost and Keefe Library collections for transfer. The obvious first choice was less-used backruns of serials. The librarians generated a list of all the library's serial titles and circulated it to every member of the faculty. This may have seemed like overkill to some; however, the librarians knew that academic chairs sometimes neglected to communicate with faculty in their departments, and the librarians wanted to make sure that all faculty members had the list and could participate in the selection process. The

Fig. 1.
Bunker—main entrance

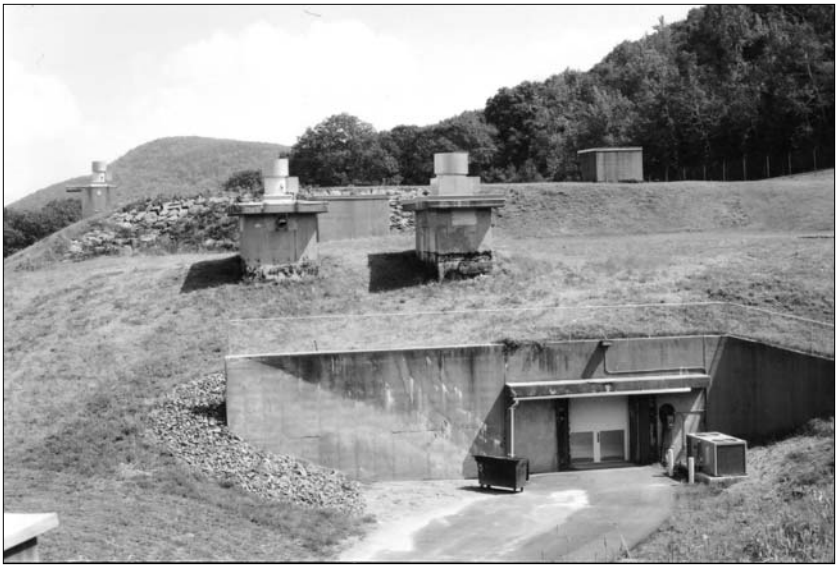

Fig. 2.
Bunker—secondary entrance

Fig. 3.
Bunker—war room

librarians suggested that less-used science serials more than 10 years old and humanities and social science serials more than 20 years old be candidates for transfer. Librarians met with individual faculty members and with groups and explained the necessity to select volumes for transfer quickly.

On the whole, cooperation was excellent. Faculty members in some departments were reluctant to propose the transfer of any titles, suggesting that they did not want to be deprived of immediate access to the material. In a few cases, the librarian had to intervene and insist that the faculty select a reasonable number of titles; however, most faculty members were remarkably responsible. Interdisciplinary titles were sometimes a problem. Faculty members in one field might be ready to relegate the backrun of a title to the depository while their colleagues in a related field were adamant that the same title had to remain on campus. Negotiation, often mediated by a librarian, resolved these problems. The burden of selecting the titles that did not fall within any one discipline was assumed by the librarians—in particular, the head of reference and the serials librarian.

At the end of this difficult but necessary process, the faculty and librarians had identified about 65,000 serial volumes for transfer to the depository. To meet the goal of 75,000 volumes, 10,000 more volumes had to be selected.

Book Transfers

If it was difficult to select backruns of serials for transfer to the offsite storage center, it was even harder to select monographs for the depository. Reasoning that there might be less demand for older books in the sciences and technology (Dewey Decimal Classifications 500 and 600), the librarians proposed the transfer of books in these fields published before 1974. These books were easily identified because the library had switched to the LC Classification System in 1975. Consultations with science faculty revealed that they were willing to part with most of these older books, but they wanted to retain the classic works in their fields on campus. Faculty identified the classic books, and the catalogers reclassified them into the LC Classification System. Catalogers then performed a "global transfer" to change the location on the online catalog records to indicate that the remaining books were now part of the depository collection. Because their anticipated use was greater, books in the humanities and social sciences were retained in the Frost Library.

The 75,000-volume target had been reached; faculty and librarians were still on friendly terms; and there were no hostile remarks in full faculty meetings. In fact, the project strengthened the relationship between faculty and librarians in an unexpected way. Because the librarians made a major effort to explain the reasons for the transfers, because they were patient and understanding about the difficult decisions the faculty had to make about the collection, and

because they were willing to negotiate differences of opinion, librarians earned the faculty members' trust and respect.

Archives and Special Collections Transfers

The selection of materials to be transferred from the Archives and Special Collections Department required a great deal of thought. Fortunately, sensitive and often irreplaceable items from this department could be transferred to secure, separate rooms in the depository.

Key Depository Decisions

As part of their effort to gain faculty members' consent for the transfer of the materials to the depository, the librarians offered to shelve the collection by classification number order, rather than by size and accession order. This meant a loss of 25 percent to 35 percent of shelving space; however, it seemed a reasonable price to pay for the faculty's cooperation. Librarians also pointed out that volumes transferred to the bunker could still be browsed, if patrons were willing to visit the depository stacks, where the temperature fluctuated between 50 and 52 degrees Fahrenheit.

The library's positive experience with open-access, electrically controlled compact shelving at the Frost Library influenced the choice of compact shelving for the depository, but because it was anticipated that users would seldom enter the stack area, manually operated, rather than electrically controlled shelving, was installed.

Environmental decisions for the depository were critical. The librarians knew that it was important to insist on a "friendly" environment for the materials stored there. Temperature was not a problem. The natural temperature of this underground building was ideal for the storage of books. Humidity was another matter. Equipment had to be installed to reduce the humidity. There were other problems as well. The roof, covered with thick layers of rocks and earth, developed a leak and had to be repaired. Alarm systems were required. New lighting had to be installed. The heavy lead door at the main entrance had to be replaced, and a small reading room, as well as a reception room and staff work area, had to be built in a heated area.

Moving the Collections

Professional book movers were hired to transfer the materials from both the Frost and Science Libraries. Archives and special collections materials were transported separately by staff and a volunteer from the Friends of the Library. After the transfer was complete, the professional book movers reshelved major sections of the Frost Library stacks so that the collection would be in A-to-Z order for the LC-classified portion and in 001-to-999 order in the Dewey-classified section. The book movers also respaced the remaining collection to close the gaps produced by the transfers and make room for future growth.

Staffing

Staffing proved to be more of a problem than had been anticipated. A member of the library staff was transferred to the depository to shelve incoming materials, find and supply requested items, welcome visiting users, maintain records of use, and safeguard the collection. In addition, the College's Physical Plant Department assigned responsibility for maintaining the bunker to one of its staff members. After the bunker was well established, the Physical Plant Department agreed to reassign that staff member to spend approximately one-half of his time on library-related work. Concerns about personal safety at the bunker were addressed in part by providing portable telephones for staff members who work there. The anticipated increase in the number of staff members working at the bunker in the future should also help address staff feelings of isolation.

Use of the Depository Collection

Use statistics for fiscal year 1998–1999 indicate that 120 items, or slightly more than two items per week, circulated from the Amherst College Library Depository to faculty, students, and staff. With approximately 90,000 volumes stored at the depository by that year, the percentage of circulation from that collection to Amherst users was a phenomenally low 0.0013 percent. In 1999–2000, the total number of depository items circulated to Amherst College users was 458 items out of a total of approximately 100,000 items, or 0.00458 percent. The total number of items entered into general circulation, including Five-College loans and interlibrary loans, was 461 in 1998–1999 and 635 in 1999–2000. The demand for the materials was extremely modest. On-site use was surprisingly minimal as well. Since its opening, only one or two faculty per year visited the depository to consult library materials stored there.

There are two ways to look at these use statistics. The librarians and faculty could take credit for having picked the "right" materials for the bunker, that is, items that were requested very rarely. Another, more negative, way to interpret the figures is that had those volumes been readily available on the open shelves in an expanded Frost Library, use would have been far greater. Students, hard-pressed for time to complete papers, might not have been able to wait for delivery of requested material in the normal depository turnaround time of 24 hours. Faculty might have decided that the inconvenience was too great. But at least one Amherst faculty member had a delightfully positive reaction. After visiting the bunker, he wrote:

> I used the depository once this year. I wanted to thumb through all of the Library's many volumes of the Franco-era liberal literary quarterly, *Papeles de Son Armadans*, which had been removed from the stacks to the depository. I didn't know just what I wanted, but I knew that it was there. After a fit of petulance at the Library's reluctance to move the whole pile from

> bunker to College, I went to the mountain instead. I'd been told that the people there were nice, and helpful. So one day I drove up with my wife. [The library staff member] had put all the books on a rolling shelf; she gave me a room where I could look at them. After I'd done this, and picked a few to take back with me, Tom, the caretaker, whom I knew from when he worked at Frost, said he'd take us through the redoubt. A thrilling tour: dead air and bright fluorescence; war room now crammed with art objects; tunnels . . . to make you feel that you'd escaped catastrophe to revisit it as theme park. My reading of the Papeles was mellow and fruitful; it set up a semester of teaching modern Spanish literature.[1]

The Proposal for a Five-College Library Depository

The Five-College Libraries, having taken successful consortial approaches to ordering, cataloging, circulation, subscription database management, and materials delivery in earlier collaborative efforts, explored ways to extend their cooperation to the growing problem of finding space to store little-used books in their collections. Aware of Amherst's success in creating a library depository, the Five-College library directors discussed the possibility of turning the Amherst facility into a Five-College Depository.

The location for a central depository could not have been better. The bunker was situated within a mile of Hampshire College, about midway between Amherst College and the University of Massachusetts at Amherst on the north and Mount Holyoke on the south, and about 10 miles from Smith College in Northampton. The access road leading to the bunker was along the regular routes of the Five-College library delivery service and the free intercampus bus service

The directors were not immediately convinced that it was in their libraries' best interests to participate in a Five-College approach to off-site storage. They were concerned about losing control of portions of their collections, as well as browsing capabilities and convenient access to their materials. The University of Massachusetts, with the obligations of a state research library, was concerned about ownership issues. All five members were uneasy about finding a way to divide the costs equitably.

On the positive side, the five library directors had a long history of close and successful cooperation on a variety of projects, including the operation of a Five-College online catalog and circulation system in which the holdings of the four college libraries were combined in online bibliographical records. The level of trust among the library directors was high. They also had considerable encouragement from their presidents to explore ways to expand the coordination of collection maintenance and development among the five libraries.

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[1] Letter, James E. Maraniss to Willis Bridegam, April 24, 2000.

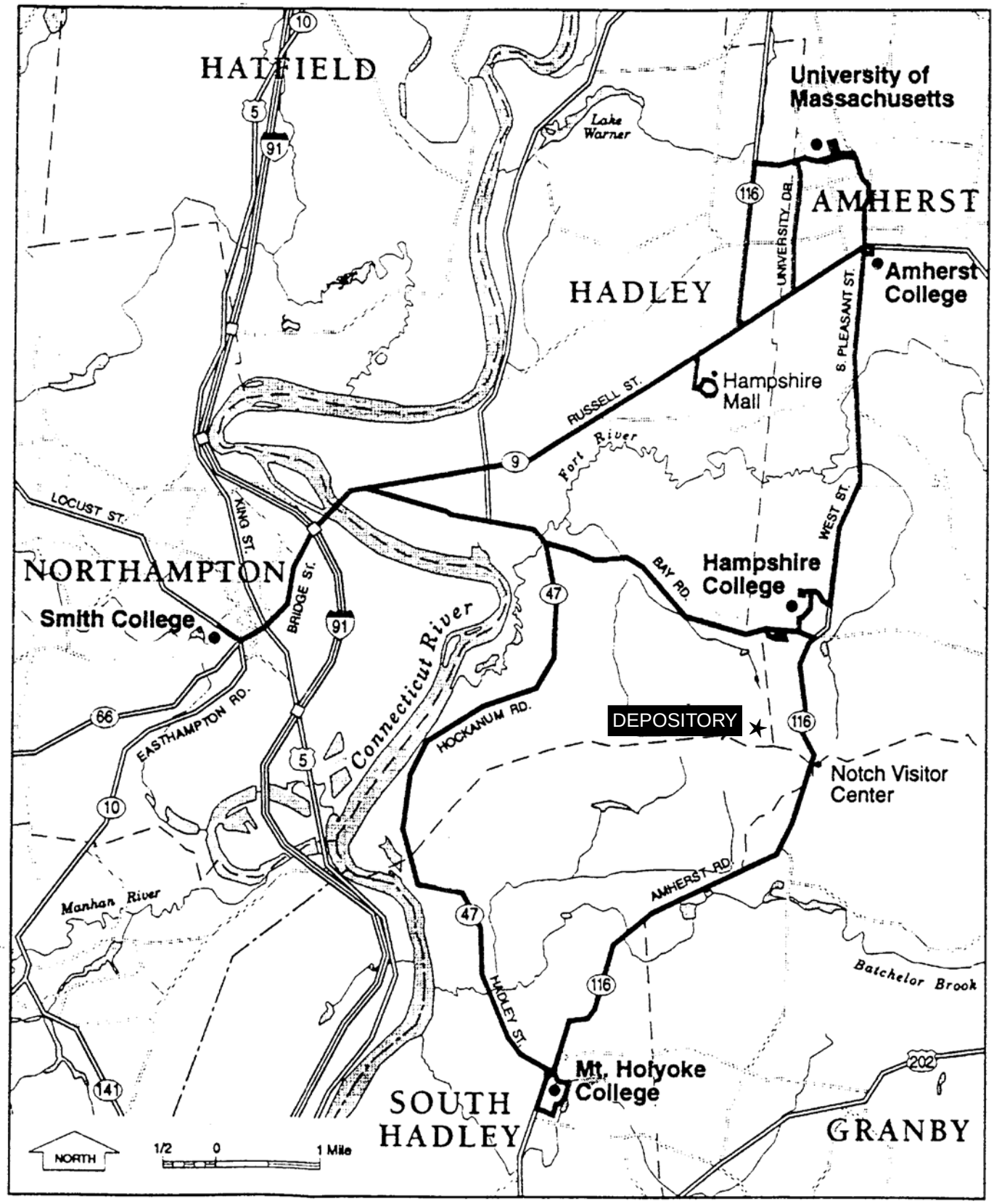

Fig. 4. Map of area served by Five-College Library Depository

Patricia Battin,[2] who advised the librarians in planning for the depository, described the Five-College situation as follows:

> Cooperation was the first stage, when the libraries agreed to explore joint activities but continued to retain their individual identities, collections, budgets, and services. Coordination was the second stage, when the institutions began looking at their operations as pieces of the whole, trying to make it all work as a system. Collaboration, now made possible by the capacities of digital technology and mandated by economic realities, is the creation of something greater than the sum of its parts. The decisive test of collaboration is that participation means passing the point of no return. Dropping out is no longer an option.

All five facilities were running out of shelf space in both their main and branch libraries, and the campus presidents were resisting the idea of expanding the libraries to accommodate growth. The library directors were impressed by the favorable environmental conditions at Amherst College's bunker—conditions made possible with modest initial expenditures and relatively low maintenance costs. They understood the economies that might be realized through joint staffing of a shared off-site library storage center. They saw the potential advantage of being able to develop complete periodical backruns from fragmented sets of the five individual libraries. They supported the idea of choosing the best copy of a book or periodical volume of which there were duplicates for retention in a depository. They thought that it would be efficient to establish one conservation service at the bunker for all the materials transferred there. They thought that a joint approach might be more likely to attract external and internal funding. But most of all, they were interested in relieving the shelving space pressures in their libraries.

Outside Interest in Participation

While considering the possibility of establishing a jointly operated depository, the Five-College Librarians Council, a standing committee composed of the five library directors and the coordinator of Five Colleges, Inc., discussed the issue with other college and university librarians in the region. One nearby consortium expressed interest in observing the project, and another inquired whether the five colleges would consider expanding the plan to allow other libraries to participate.

Careful thought was given to the advantages and disadvantages of opening the project to other libraries. On the positive side, additional college members would help share the maintenance costs and would enrich the holdings of the depository. On the other hand, there was concern about the capacity of the bunker and the issues of governance and cost sharing. The Five Colleges, because of their his-

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[2] Patricia Battin is the former president of the Commission on Preservation and Access (now part of the Council on Library and Information Resources [CLIR]).

tory of cooperation, knew each other well. Representatives at all levels met regularly. For purposes of cost sharing, they had devised a unique "elevenths" formula. This formula considered Hampshire College, with the newest and smallest library, a single unit of cost; the three older colleges (Amherst, Mount Holyoke, and Smith) as two units of cost each, and the University of Massachusetts as four units of cost, for a total of 11 units. The librarians reasoned that the "elevenths" formula could be used for depository costs as well.

In the end, participation in the depository project was restricted to the Five-College libraries for the immediate future, but future cooperation with other consortia would be encouraged when appropriate. For example, if another academic library depository were to be established elsewhere in New England, the presidents would expect the Five-College libraries to collaborate with the other nearby consortium in matters of collection retention and resource sharing.

Preliminary Cost Estimates

With the support of a planning grant from The Andrew W. Mellon Foundation, the Five-College librarians hired two consultants, Danuta Nitecki, associate university librarian of Yale University, and Curtis Kendrick, then an assistant director of Harvard University Library and director of the Harvard Library Depository. With the assistance of the Amherst College Physical Plant Department, the consultants determined the feasibility of creating the depository and estimated the costs. An architect created preliminary plans for the renovation of a 9,180-square-foot area in the bunker as a Five-College Library Depository, and Willis Bridegam, librarian of the college at Amherst, visited the depositories at Harvard and Stanford Universities, as well as The University of California Northern Regional Library Facility (NRLF) in Richmond, California.

Estimated costs to operate the depository for a 10-year period were as follows:

Lease of property	$ 480,100
Personnel	1,042,847
Physical plant maintenance	111,885
Circulation/transport of materials	43,823
Utilities	145,490
Telecommunications	12,006
Book trays	21,665
Office supplies	12,006
Equipment service and upgrades	30,358
Miscellaneous	50,000
Total	$1,950,180

Applying the Five-College "elevenths" formula, the estimated 10-year cost breakdown for the each member of the consortium was as follows:

Hampshire College (1/11)	$177,289
Amherst, Mt. Holyoke, and Smith Colleges (2/11 each)	$354,578
University of Massachusetts (4/11)	$709,156

The storage cost per volume for 10 years, calculated by dividing the anticipated total cost ($1,950,180) by the estimated capacity (about 500,000 volumes), was $3.90.

The librarians estimated that over that 10-year period, they would need additional space to store a total of 470,000 volumes, well within the capacity of the proposed storage center. In terms of volumes, the breakdown among the five institutions was as follows:

Amherst College	75,000 volumes
Hampshire College	5,000 volumes
Mount Holyoke College	65,000 volumes
Smith College	75,000 volumes
University of Massachusetts	250,000 volumes
Total	470,000 volumes

Storage Options Available to the Five Colleges

Comparisons of the costs and advantages of storing 500,000 volumes at the Amherst College bunker rather than at other sites indicated that creating a Five-College Library Depository at the bunker had advantages in addition to being cost beneficial. As plans moved forward, the following four alternatives were considered.[3]

Deaccessioning Duplicate Volumes from all but one Library

If the libraries wished to reduce unnecessary serial duplication by deaccessioning all but one copy of little-used materials and by retaining the remaining copy in one of the libraries, the savings would be considerable. The additional advantage of storage in a depository is that *all* retained little-used material can be stored inexpensively. Duplicates are likely to figure heavily in early transfers, but at later stages, it is likely that substantial numbers of unique volumes will be transferred to the depository.

[3] A considerable amount of the information in these options was collected by Renee Fall, assistant coordinator for program planning and development, Five Colleges, Inc.

Renting Commercial Storage Space

No local commercial rental space that met the libraries' environmental, access, and telecommunications requirements could be found in the Five-College area. The closest possibility was a warehouse near Smith College that would have charged a minimum of $2.40 per square foot per year for a non-environmentally controlled space. The books would have been stored in stacks of boxes, there were no facilities for transmitting electronic copies, and there was no space where users could consult retrieved material. The cost to lease and maintain the proposed depository at Amherst's bunker for the first year was $57,329. Dividing that amount by the available 9,180 square feet indicates that the cost at the Amherst College bunker was $6.24 per square foot for environmentally "friendly" storage space. That advantage aside, there were further considerations to be borne in mind. The fact that Amherst College—an affiliate, partner, and financially stable institution—was willing to be the landlord ensured the project against sudden escalations in prices, relocation, or the unexpected imposition of additional fees. Finally, Amherst's success in implementing its own off-site storage facility at the bunker was reassuring.

Buying Storage from Another Library

The Harvard University Library Depository estimated the cost for storing 500,000 volumes at $245,200 per year (with a 5 percent increase per year). The average yearly total cost for the proposed Five-College Library Depository (renovation, start-up, lease, and annual operating costs) for a 10-year period was about $220,000. The Harvard estimate covered storage only and did not include costs for retrieval ($3.19 per volume), transfers, and transportation between Harvard and the Five Colleges (200 miles per round trip).

Building a New Facility

The cost of constructing a 19,000-square-foot depository and preservation laboratory at the University of South Carolina in 1998 was $3.8 million, or about $200 per square foot. Of that space, a 10,000-square-foot area is dedicated to storage, for an approximate cost of $2 million. The cost of renovation (just under $1 million) to the Five-College Library Depository, along with the annual lease of $48,000 per year for 10 years, would amount to about $148 per square foot. Extra transportation costs would be an added expense for the South Carolina facility, since it is 12 miles from the main campus, and, unlike the Amherst College bunker, is not on a regular route.

Approval in Principle

Having considered the four options, the Five-College librarians decided to propose greater overall collaborative collection development and the use of Amherst College's bunker as a Five-College Library Depository. In November 1999, the presidents of the participating institutions approved in principle the Librarians' Council's proposal and authorized Five Colleges, Inc., and the Librarians'

Council to look for outside funding to help support the project. It was noted that space for the depository in the bunker would be available by December 2000.

Anticipated Implementation and Operation

As the Five-College librarians discussed the guidelines and policies that would govern the operation of the proposed depository, they were able to reach a consensus on most issues. The following are some of the issues that were discussed and resolved:

Transfer of library materials. When Amherst, Hampshire, Mount Holyoke, or Smith transfers library materials to the depository, it will relinquish ownership of those materials. The new owner, the Five-College Library Depository, will have the right to add materials contributed by the four colleges or to dispose of them. The University of Massachusetts at Amherst Library, as a public research institution, will retain ownership of its materials. Its materials will be shelved separately at the depository.

Disposal of duplicates. To save space, duplicate copies of items sent to the depository by the four colleges will be compared, and the best copy will be retained. Unwanted duplicates will be given to needy libraries around the world.

Stack arrangement. The depository stacks will be closed. Materials may be requested by page for use in the depository reading room. The stacks will be arranged by size. Range and shelf numbers will be indicated. Materials added to the depository collection will be sorted first by section (that is, the university or the four colleges) and then by size. They will be shelved in the order of their receipt.

Catalog location indications. The existing Five-College online library catalogs will be updated to show the new locations of materials transferred to and retained by the depository. The location fields in the four-college item records and check-in records will be a new four-college location code such as "FCDEP" (Four-College Depository).

Circulation of materials. Five-College faculty, students, and staff will use the Innovative Interfaces online catalog "Get" function to request material from the depository. Every effort will be made to respond to requests within 24 hours on working days. Materials will be circulated by the Five-College interlibrary delivery service; copies will be supplied through photocopying, faxing, and scanning.

Staffing. A project manager, reporting to the Five-College Librarians' Council, will be hired to manage the depository and to oversee the approval process for depository materials. The manager will work closely with the Collections Management Committee. More staff will be provided during the first three years of operation to facilitate a rapid transfer and assimilation of library materials. After four years, the staff will be reduced to a half-time manager plus 1.5 full-time equivalent staff members.

Materials transfer. Because the cooperating institutions' need for on-campus shelf space varies, the order in which journals will be moved to the depository will be determined by the project manager in consultation with the Collections Management Committee. There may be instances when three colleges agree to transfer one run of journals to the depository while the remaining campus chooses to retain its run. The goal is to move toward a shared depository collection of "best copies" without duplication in the four colleges' section; however, occasional exceptions will be made if necessary.

Funding. The Five Colleges are seeking substantial external funding for the establishment of the shared depository. The Andrew W. Mellon Foundation and the Davis Educational Foundation have awarded grants to the Five Colleges, Inc., for the project, and the Five Colleges have applied to other funding agencies for support. The "elevenths" formula will be used to determine each institution's share of the remaining cost.

Five-College Collections Management Committee

In 1999, the Librarians' Council appointed a Five-College Collections Management Committee to facilitate cooperative collection development among the participating facilities and to establish collection development guidelines and policies for the proposed depository. The committee members included collection development librarians from each of the institutions plus a representative of the Librarians' Council.

The Librarians' Council gave the committee two initial charges: (1) to improve implementation of the existing Five-College collection development policies; and (2) to examine shared storage issues. In May 1999, the Librarians' Council approved the following policy proposals made by the Collections Management Committee:

1. Before canceling the last subscription of a serial, each institution will inform the Five-College Collection Management Committee of its intention. This information should be as timely as practicable. Response to the cancellations might be an acknowledgment of the decision or an effort to reverse the cancellation decision through negotiation, persuading one of the other institutions to pick up the subscription, or any other appropriate response.
2. Any new electronic, paper, or microfilm serial added to a collection that costs $5,000 or more will be reported by e-mail to the committee members of the other four institutions.
3. The five libraries will be released from all previous Hampshire Inter-Library Center (HILC) subscription maintenance responsibilities.
4. Recognizing that electronic materials are playing a steadily increasing role in library services, each institution will make every effort to keep the others informed of new electronic purchases not initiated through a Five-College committee.

The Librarians' Council asked the Collections Management Committee to begin its consultations with representatives from academic departments who could provide examples of the different ways in which faculty might react to the development of a Five-College Library Depository. In addition to discussing the reactions and requirements of individual disciplines, the Librarians' Council asked the committee to identify periodical backruns for transfer to the depository. The library directors suggested that the first periodicals sent to the depository should be the backruns of journals that were also available in JSTOR, reasoning that faculty would have fewer qualms about removing these volumes from the library stacks and discarding all but one copy. They also encouraged transferring to the depository the journal backruns from the HILC collection that had been distributed to the libraries in the late 1970s.

Academic Department Reactions to the Proposed Depository

In anticipation of the meetings with the Five-College faculty representatives and their departmental librarian liaisons or subject area specialists, the Collections Management Committee prepared the following list of questions:

- What do you consider "convenient access" to library resources? Consider future alternatives as well as past experiences.
- What is an acceptable delivery time for receiving materials not held on campus?
- What are the core materials that need to remain physically on campus?
- Can you help us identify subfields in your discipline for which journal backruns are less important and therefore could be considered for off-site storage?
- If back files of selected journals were moved off campus, how many years of those files would you wish to retain on campus? The last 10 years? 20?

Some of the responses from the faculty in these disciplines (Norton 2001) were as follows:

Physics

The physics representatives were delighted with the expanding electronic access to journals in their field. They emphasized the importance of receiving requested library materials or copies as quickly as possible—fax copies and electronic transmissions to their departments would be satisfactory; a one-day wait for delivery would be too long if their need was urgent. They suggested that the depository be open on Saturdays and some evenings. They recommended that the first items sent to storage be those that were available online. They said it would be important for physics faculty to be able to receive color copies of some items.

African Studies

Members of the African Studies Council asked about the reason for considering a depository library. They were of the opinion that if the primary goal was not to reduce expenditures for acquisitions but to provide more space for library materials, they could support the project. One faculty member asked, "If we consolidate our holdings on a Five-College basis, could we jointly subscribe to more journals or purchase more materials?" (The answer was "yes.") There was concern about the loss of browsing capacity, particularly for books. The faculty supported the transfer of periodical backruns, but hoped that books could be excluded from the depository. An anthropologist stated that he rarely needs references in the *American Anthropologist* that are more than five years old, but a historian said that he would feel insecure if volumes from the last 10 to 15 years were sent to the depository. Hours were important; the faculty believed that consideration should be given to remaining open one weekday evening and Saturdays throughout the year. Perhaps the most encouraging outcome of the meeting was that the African Studies Council invited the committee to return to tell the faculty more about online resources.

Slavic Studies

The Slavic studies faculty and librarian liaisons represented a group that had a history of cooperation by using a Five-College approach to collection development. They were interested in the arrangement of materials at the depository—would items be misshelved and consequently lost? (The committee pointed out that the likelihood of misshelving is usually greater in an open-stack arrangement than in a depository.) The faculty urged the librarians to distinguish between materials needed for teaching and those needed for research, and they recommended that only less-used items be stored offsite. Faculty members were concerned about how they would be able to look through runs of journals. (The volumes would be provided in chronological order at the depository or sent to a supervised area in one of the libraries for review.) A faculty member wondered whether offsite storage might be an obstacle to "timely research." (Desktop delivery of copies was a partial answer.) There was agreement that humanities scholars needed campus access to the backruns of their journals for longer periods of time than did science scholars. The faculty encouraged the committee to permit, within a reasonable period of time, reversals of decisions about what to send to storage. Keeping in mind the need for a solid core collection at each of the libraries, participants agreed that a cooperative approach, that is, apportioning responsibility for holdings according to each institution's strengths, was a good idea.

Philosophy

The philosophy faculty and liaison librarians were reluctant to see any books or periodicals transferred to the depository. They did, however, moderate their reaction by saying that when reliable electronic access is available, they would be willing to let the materials

represented electronically go to the depository. Although they were reluctant to put books in the depository, they would consider doing so if they could choose the books, and if they could on rare occasions request the delivery of a small group of books that would have classed together in open stacks. These books would be identified using the online catalog classification number. They observed that students are increasingly unwilling to enter the library stacks. If the material the students want is not online, they feel that it is not worth the effort trying to find it. Several faculty members were of the opinion that both students and faculty needed to learn more about using online resources.

Fine Arts

Some of the fine arts faculty were concerned about the targeting of periodical back runs for remote storage. They suggested that if a portion of the collection in their field had to be transferred to the depository, they would be more inclined to choose little used monographs. Members of the committee pointed out that the processing time per volume would be much greater for books than for periodical back runs. In reply, the faculty suggested that the librarians ask the presidents for temporary staff with the necessary expertise to review monographic collections and circulation records in order to make appropriate recommendations. Another faculty member pointed out that we are moving from a traditional to a modern library system that provides digital access to information. He suggested that we identify the advantages and disadvantages in both systems and try to offer the best of both worlds. The faculty's principal concern was for the quality of images being offered in an electronic format, which was judged to be uneven at this time.

Biology, Chemistry, and Biochemistry

The faculty representatives responded to the question, "What constitutes convenient access?" by saying, "It depends." Sometimes immediate access is important; other times 24-hour service is adequate. Perhaps we should consider providing a "rush" service for a fee. Concerns were expressed about the quality of scanned images, particularly those in color. The librarians were admonished to provide good equipment and staff who would be trained to communicate effectively with faculty about items that might not scan well. The question of whether or not to circulate materials from the Depository had proponents and opponents. The Depository's circulation policies should take into consideration both the need to preserve materials and provide access to them.

Economics

The faculty representatives thought that there was not much use of back issues of economics journals that are more than 20 years old. On the other hand, they pointed out the greater use of older general journals such as *Fortune* and *Scientific American* by economic historians. Assuming that current journals will, for the most part, be pro-

vided electronically, the faculty recommended strongly that we pay attention to the need for adequate computers and network facilities. Faculty thought that the availability (or unavailability) of reference service at the Depository might influence the types of material selected for it.

English and Romance Languages

Reading electronic text for any length of time is a concern. Some faculty deal with it by printing needed materials from the electronic versions; others "hope for early retirement." Circulation concerns and the desire to retain the printed page raised the question of retaining two copies, one as a "copy of record" and the other as a circulating copy. One faculty representative suggested that in some cases she hoped the needs of a faculty member from another institution might influence what is sent to the Depository by the library owning the volumes.

Geology

Faculty representatives thought that if electronic access to back runs of periodicals were genuinely easy, then those volumes should be early candidates for storage. Circulation of "copies of record" should be carefully regulated. Faculty wondered if the text of volumes could be scanned as they were transferred to the depository. (Librarians replied that that work could be done more economically nationally or internationally.) The faculty hoped that there would be no copyright problems when it was necessary to copy and transmit publications still under copyright.

A National Trend Toward Academic Depository Libraries

New and expanded library buildings enabled college and university libraries to accommodate their increasing storage needs until the mid-1970s. In the late 1970s and the 1980s, when administrators became increasingly hesitant to approve funding for library construction or expansion, librarians installed high-density storage. When even that remedy provided insufficient shelving for their growing collections, librarians began to look at the solution that Harvard College President Charles W. Eliot had proposed at the beginning of the century: depository libraries.

Virginia Steel reported in 1990 that 45 of 90 Association of Research Libraries (ARL) libraries responding to her survey stored materials in a separate storage facility, and 10 more were planning to do so (Steel 1990). The popularity of depositories continues to grow. The following paragraphs describe some of the depositories created during the past 20 years.

Examples of Academic Depository Libraries

Harvard University, which opened its first storage section in 1986, has served as a model to other library depositories. It added three more storage units in the 1990s and completed two additional units in 2000. Harvard's depository initially stirred controversy among faculty members, but the skeptics have reportedly been won over by the service record of the depository (Young 1997). Harvard currently provides some storage space to other libraries (Harvard University 2001).

The Yale University Library Shelving Facility, located in Hamden, Connecticut, has an 8,000-square-foot processing area and a 13,800-square-foot shelving system. Materials are retrieved from the shelves with the aid of a rail-guided, adjustable height mechanism that enables staff to reach all shelves. The building environment is maintained at 50 degrees Fahrenheit with 30 percent relative humidity. The facility opened in 1998, and by August 2000, the staff had shelved more than 500,000 volumes in the facility[4] (Yale University Library 2001).

The University of California's Northern Regional Library Facility in Richmond was opened in 1983 with a master plan calling for seven modules for library storage. Two modules, containing a total of approximately 4 million volumes, have been built to date. The facility was adding about 130,000 to 200,000 volumes per year, but in recent years its rate of growth has been reduced because its third module is not yet ready for use. Libraries depositing books in the NRLF retain ownership of the materials they deposit and may request their return at any time. Northern University of California libraries have a quota of books they must place in the NRLF each year. If a volume is withdrawn, it must be replaced (University of California 1999).

The Stanford University Auxiliary Library (SAL), unlike most other depository collections, uses traditional shelving so that the collection can be arranged in call-number order and browsed by users (Weber 1997). The books are arranged in four size sequences and double shelved on 19-inch-deep shelves. The collection contains not only books but also maps and microforms. The SAL collection contains about 1.5 million volumes and circulates approximately 25,000 volumes per year (Stanford University 1998).

The University of California's Southern Regional Library Facility (SLRF) is located on the campus of the University of California, Los Angeles. The primary depositors are the libraries of the university's southern campuses, but other libraries in the region, public and private, may become depositors. Although the State of California recommended the establishment of the SRLF in 1977, construction of the first phase was not completed until 1987. A second phase was completed in 1995, bringing the stack capacity to 6 million volume-equivalents. The building was designed to permit construction of additional stacks as needed. Materials are shelved by size and acces-

[4] E-mail, from Danuta Nitecki to Willis Bridegam, August 9, 2000.

sion number. A high-security area is provided for special collections (University of California 1995).

The University of Missouri Libraries Depository (UMLD) serves the university's Columbia, Kansas City, Rolla, and St. Louis campuses, as well as the State Historical Society of Missouri and the Western Historical Manuscripts Collection. The University of Missouri-Columbia manages the depository. Each library of the University of Missouri has a regular schedule for sending deposits to UMLD. The schedule is agreed upon by the library directors and takes into consideration issues such as the number of books an institution has ready for transfer, the institution's need to transfer materials, and the availability of space (University of Missouri Libraries Depository 1997).

The University of Michigan's Buhr Shelving Facility, holding more than 1.9 million items, is a depository library for the University of Michigan Libraries. Because space is limited in the 16 campus libraries and the libraries receive nearly two miles of books per year, they regularly transfer less-used volumes to the facility (University of Michigan 1999).

The Southwest Ohio Regional Depository, located on Miami University's Middletown campus, is one of five such facilities to be constructed in the State of Ohio with funding from the State of Ohio's Board of Regents. The depository has about 13,700 square feet, about 8,000 of which are allotted for storage. The facility is 30 feet tall and can accommodate more than 1 million volumes. It provides storage for little-used library materials from the collections of Miami University, the University of Cincinnati, and Wright State University. (Southwest Ohio Regional Depository 2001).

Unusual Approaches

Although the following two examples cannot be considered traditional library depositories, they are worth mentioning for their unusual approaches to the storage of less-used library materials.

Vanderbilt University not only provides off-site storage for library materials at its Library Annex but also offers limited short-term storage, by the square foot, to its schools, departments, and divisions. Materials for storage must be able to coexist with library materials; no chemicals, foods, or liquids are permitted. As the library system increases off-site book storage space, it will decrease the space available for general storage. Examples of candidates for short-term annex storage are boxes of faculty papers, boxes of books, computer tapes and cartridges, filing cabinets, inventory records, and furniture (Vanderbilt University 1999).

At Eastern Michigan University, the Bruce T. Halle Library was opened in June 1998. Only newer and heavily used books (about 150,000 volumes) are in the open stacks. The remainder of the collection (approximately 300,000 volumes) is stored in bins and must be requested by the patron at the circulation desk. Retrieval takes from

5 to 10 minutes. The bins are maintained in a multistory closed access area of the library (Eastern Michigan University 2000).

Planned Storage Facility

The trend toward the construction of academic library depositories is continuing. For example, the New York Public, Princeton University, and Columbia University libraries are planning a shared joint offsite storage facility that is scheduled to open in July 2001 on Princeton's Forrestal Campus. The first three modules will accommodate approximately six million volumes (ALA. ALCTS 2000).

Conclusion

The Five-College Libraries' collaborative approach to the storage of little-used research materials is but one of many current national efforts. The Five-Campus project differs from the others, however, because it takes collaborative off-site storage a step beyond simply storing the library materials of several universities or colleges separately. It calls for deaccessioning of duplicate copies and joint ownership of the remaining collection. It requires a level of interdependence and trust that, to the author's knowledge, has not been tested by other consortia. It offers the possibility of substantial cost savings through the elimination of duplication and the maintenance of a single depository for five institutions. It also guarantees ready access to original paper copies of research materials. Patricia Battin has summarized the situation well:

> Despite the growth of electronic resources for certain kinds of instruction and research, I believe that humanities disciplines will require, for a very long time, traditional books and journals, in addition to newer media and formats. The concept and design underlying this [project] make it an especially useful model for other institutions. The collaborative history and experience of the Five Colleges, Inc., make it the perfect candidate to pioneer in the recasting of traditional autonomous structures into a new organizational concept that provides a sum far greater than its parts. I am convinced that the collaborative model proposed by the Five Colleges Inc., represents the future for liberal arts institutions in the twenty-first century.[5]

[5] Letter, Patricia Battin to Lorna Peterson, April 24, 2000. Lorna Peterson is the Five College Coordinator.

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