

# The Annex Library of Princeton University: The Development of a Compact Storage Library

*Forced by the pressures of space to venture into compact storage, Princeton developed its unique "open stack" compact storage library, the Annex Library, after examining modes of storage used by other libraries. Influenced by the importance of maintaining good public relations with its users and of interfering as little as possible with existing cataloging practices, Princeton made "reversibility" the chief advantage of its selection and processing systems. This paper deals with the decisions made and the methods used to organize the Annex Library, with the building itself, and the selection, cataloging, and retrieval procedures.*

## THE IDEA OF COMPACT STORAGE AT PRINCETON

THE PRINCETON UNIVERSITY LIBRARY system consists of a central building, the Harvey S. Firestone Library, in which the university's basic book collection is housed, and eighteen special subject collections located in buildings elsewhere on campus. The Firestone building opened in 1948. Its open stack arrangement was designed to be flexible and expandable, but expansion for book shelving could only be carried so far. Provision had to be made for reading areas, carrels, and personnel offices; for expansion of the preparations areas and of the main card catalog. Gradually, with the growth of the book collections all over the campus, the Firestone building became a depository for materials for which the subject libraries did not have room, and for books for which

future buildings are planned, as is the case with the Oriental language collections.

As early as 1959, the library administration expressed concern about the problem of housing its burgeoning book collections. At the time, William S. Dix, the university librarian, pointed out in a memorandum to the faculty and trustees that the Firestone Library, which had opened only ten years earlier, would be filled to capacity by 1965, and that almost all of the special subject collections were already plagued by overcrowding. With the construction of new facilities, space pressure in many of the outside libraries would be eased considerably, but the situation in others and in Firestone would only worsen with increased acquisitions due to plans to broaden the curriculum and to expand the graduate school.

Emergency measures had to be undertaken to forestall the anticipated overcrowding, since an addition to the Firestone building could not be made

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*Mrs. Conger is Annex Librarian, Firestone Library, Princeton University.*

immediately. Three alternatives were suggested:

1. participation in some cooperative storage or deposit venture with other libraries in this area, a procedure through which seldom-used volumes might be transferred to a jointly owned building not necessarily in Princeton;
2. the conversion of a part of the Firestone building into a closed-stack, compact storage area in which seldom-used books might be shelved according to size, without regard to classification and much more economically than in the present classified arrangement; or
3. the erection somewhere on the edge of the campus of a comparatively inexpensive storage library for the housing in compact fashion of our own seldom-used books.<sup>1</sup>

Mr. Dix went on to analyze the advantages and disadvantages of each alternative:

The first is perhaps the most desirable, since it carries with it the possibility of intelligent cooperative acquisition policies which would serve through the years to reduce library costs in all cooperating institutions. Experience indicates, however, that there are tremendous difficulties to the actual realization of such a plan in this area. I shall make it my business to keep informed and to explore all possibilities which seem reasonable. The second alternative, a compact storage area within the Firestone building, seems to me unwise; it would negate the whole educational philosophy behind the open-stack building and would use expensive space for a purpose which much less expensive space would serve. Therefore we have rejected this approach and propose that this building be considered a completely open-stack, classified library until it approaches saturation, when some policy of systematic retirement of less used volumes to other less accessible areas should be instituted. The third alternative, an inexpensive storage building on inexpensive University land,

thus seems at the moment to be the most likely solution of the long-range growth problem.

#### COMPACT STORAGE ELSEWHERE

Compact storage in the United States is a fairly new idea. In Great Britain and Europe, there is a long history of storing books by size in high shelving with narrow aisles. Books are arranged in fixed accession order, without regard to subject matter; direct access to books is necessarily closed to the public. In the United States, creation of cooperative storage facilities was considered as early as 1903 by President Eliot of Harvard, but the idea did not develop until the 1940s when the New England Deposit Library was opened.<sup>2</sup> The participating libraries could rent space in an inexpensive warehouse building located in the Brighton section of Boston and there deposit their little-used monographs, newspapers, and periodicals in an arrangement of their own choosing. Each library keeps its own record of books deposited and contributes to a union catalog for the complete holdings of the building. Duplication of deposits could thus be avoided and valuable space spared.

The Mid-West Library Center,<sup>3</sup> established in 1951, stores books in six size groups on movable ranges. Now called the Center for Research Libraries, it actually assumes the ownership of the materials deposited by the participating libraries.

Yale University's "selective book retirement program"<sup>4</sup> was begun in 1952. Books are shelved in "double-faced" stacks 7'6" in height with 22" aisles. The books are shelved by size in six sizes, with volumes in the first four size groups, 5" to 9" in width and not more than 12" high, shelved on their fore-edges; volumes in the fifth group, 12" to 16" high, are shelved upright; and volumes in the sixth size group, over 16", are shelved flat. Shelves are completely

filled, with no room for insertion; books are assigned a fixed location number within their size designation. All trace of the original classification is obliterated from the book and from the catalog cards for the book. The storage number must also be typed on these cards, creating a heavy workload of cards being removed from the catalog and being refiled. All record changing procedures are performed by experienced members of the university library cataloging department, which often causes a backlog in the regular workload of the cataloging department. As the record changing procedure is so permanent, the importance of accurate and careful selection of books for storage at Yale cannot be over-emphasized.

Similar procedures are followed at the New York Public Library, whose book storage program began in 1956, and by the Union College library.<sup>5</sup>

#### THE ANNEX BUILDING: THEORY AND CONSTRUCTION

Unlike the other storage facilities just described, Princeton's Annex Library has been developed as an open stack library. The preservation of "browsability," while attempting to provide compact shelving of books, was the primary goal of the planners and architects of this building. The library was designed by the firm of Warner, Burns, Toan and Lunde (New York) and was financed in part by federal funds. It was built on relatively inexpensive University land about a mile and a half from the main campus, at Princeton's James Forrestal campus. Construction on the Annex building was completed in the autumn of 1968.

The original plans for the Annex Library, which called for a separately maintained office, a reading room, a sorting room building, and a warehouse structure for 500,000 volumes, all linked by a corridor, had to be scrapped be-

cause of the expense involved in such a design. A modified arrangement, in which the office and reading room are incorporated within the warehouse structure itself, was devised to lower the cost of construction. It also cut the capacity of the building by 100,000 volumes. Locked storage space is provided, too, within the shelving area for rare books, manuscripts, and university archives. The modified plan also diminished the amount of floor space that these library sections so badly need. The building, however, can be expanded in the future, either by extending the floor space of the building on its present site, or by building a second tier of stacks. The heating/air-conditioning system will permit year-round temperature control, set at about sixty degrees, as well as humidity control, in an effort to keep dust and deterioration to a minimum.

#### SHELVING PLAN

The principle of "browsability" is maintained in the Annex Library by shelving books by classification within size. Compactness in storage is achieved by shelving books in six sizes. Unlike the Yale system, the determining dimension of a book for sizing is its height. According to a Purdue University study, five "properly chosen heights could increase capacity by 53 percent" over average library shelving.<sup>6</sup> Originally, only five sizes were considered, based on size samplings done at Brown University, Yale, and Princeton. These five represented height maximums of 7½", 8½", 9½", 12½", and 16½". However, as the metal-clip, adjustable warehouse shelving could only be adjusted on 1½" centers, it was necessary to adapt the sizes to the shelving. The resulting size categories are as follows:

Up to 7½"	Representing 10.7% of the shelving
7½" to 9"	Representing 20.9% of the shelving

9" to 10½"	Representing 35.5% of the shelving
10½" to 13½"	Representing 24.3% of the shelving
13½" to 16½"	Representing 4.5% of the shelving

All sizes have a finger deflection allowance of ¾". The sixth size was added later to accommodate books over 16½" tall. These books are shelved flat.

The stack ranges are about 8½' tall, which means that the usable shelves range from ten for the smallest size to five for the largest. In the first two sizes, books are shelved from both sides of a single 12" shelf. The books in the third size are shelved double on a 14" shelf. Thus, the space ordinarily wasted between books shelved singly on double shelves is eliminated, except in the two larger sizes where the width of the book, being proportional to its height, warrants the use of the full shelf width for a single volume. The width of the aisle in the first three sizes is about 22". Aisle spacing is wider in the larger sizes where books are shelved as conventionally, on a double-shelved stack range, but even here the aisle width is still less than the normal stack aisle.

#### OPERATION

The Annex Library is open from 8:30 A.M. to 4:30 P.M., Monday through Friday. It is staffed by two experienced shelvees who alternate with each other, each working one week in the Annex and one week in the Firestone Library. (They do not work at the Annex at the same time.) Each man can therefore spell the other on holidays and vacations.

It is the responsibility of the shelvee to shelve all books sent to the Annex for storage, to retrieve books requested, to maintain the circulation files, to host and assist visitors in the building, and to charge out books directly from the

building. More will be said later about the components of retrieval.

#### THE ANNEX OFFICE IN FIRESTONE LIBRARY: FUNCTION AND OPERATION

The selection and processing of all books sent to storage is handled by a central office in the Firestone Library, as the office must be close to the main card catalog and the shelf list for the entire campus, as well as accessible to the people, departments, library sections, and special collections with which it works. This office coordinates the selection of the books. It also works with the various processing departments of the library: the cataloging department, the bindery, the additions and transfers section, rare books, circulation, and reserve, without being a part or subdivision. The Annex office is staffed by a professional librarian, who is charged with setting up the procedures to be followed and settling policy questions, and by one nonprofessional assistant, who processes books and book records.

#### SELECTION: WHY, WHAT, AND HOW

There are two basic principles followed in selecting a book for storage. These principles, suggested by studies at Yale and the University of Chicago, are recency of use and age of material.<sup>7</sup> During the process of selection, they are often interrelated, in that old works are very often the most unused books in a subject. However, this is not necessarily so. A volume of Aristotle's works published in the seventeenth century may be in constant demand for the history of science courses, while a modern science text may be selected for storage because it contains outdated information which could misinform a reader. (The latter should not be discarded, as it may become tomorrow's history of science text.) In general, however, the following guidelines are followed: (1) little or no

use in the past ten years, as indicated on the circulation cards (primary guide for monographs); (2) publication prior to a certain date, the date varying with subject and content of the material (primary guide for serials); and (3) superseded editions.

It has been found, however, that even with such guidelines, it is best to consult those who know and use the books, as the best guideline is no substitute for intimate awareness of the currents of interest and study within a discipline. Hence, three modes of selection have been set up: (1) direct faculty selection: a faculty member examines the books in his field at the shelves and makes a list, by call number, of those he thinks can be stored; (2) librarian selection subject to faculty review: a knowledgeable librarian examines the books at the shelves, selects those to be stored, places them on a book truck to be displayed for about a week during which time the faculty may remove those volumes which they judge should not be stored; (3) librarian selection: a knowledgeable librarian examines the books at the shelves and makes a list by call number of the books to be stored.

These selection techniques are, however, not without flaw. There have been problems with interdepartmental conflicts of interest. Thus, a man in the history department may desire that a book which was selected for storage by someone in the classics department remain available in the stacks. It has been necessary, therefore, to provide for flexibility within selection and, subsequently, processing methods. The Annex Library tries to be as amenable as possible to reversal of selection. If a book is requested by two different borrowers during one year, or if a librarian requests that a book be transferred elsewhere, or if a justified student complaint is registered, the book in question will be withdrawn from storage or "de-An-

nexed" and returned to the stacks.

As books are examined for possible storage, others which ought to be discarded are also sought, especially unnecessary duplicate copies. There may also be in the stacks material which would be of interest to the Center for Research Libraries. The criteria for selection for the Center are that such material be: extensive in bulk, not especially needed on campus, not commonly available in other libraries because of the difficulty or expense of its acquisition, and infrequently, though sometimes extensively, used.

There are, therefore, four alternatives facing the book selector when he examines books at the shelves: to leave the book on the shelf; to store the book; to withdraw the book; or to send the book or set of books to the Center for Research Libraries.

By the time the Annex Library opened for business on November 18, 1968, 36,460 volumes, 240 archives boxes, and other cartons belonging to various library departments were stored on the Annex shelves. Since then, there have been an average of 4.1 requests per day for materials from its shelves.

The largest number of books selected so far are in the subject of religion. Other subjects represented are: general periodicals, classics, sports, oratory, psychology, education, biology, geology, chemistry, economics, industrial relations, theatre arts, and music.

#### PREPARATION OF BOOKS FOR STORAGE

Books which have been selected for storage may be sent directly to the Annex office for processing, where they are arranged in call number order so that a list of call numbers can be compiled. Or, a list of the call numbers may be given to the Annex librarian, whose staff will then gather the books from the stacks. This list of call numbers becomes, in the processing procedures, the master rec-

ord of all transactions involving each call number.

The first step in the preparation of books for storage is to measure them. Five wooden sticks, each the maximum height of one of the five height categories, are used for this purpose.

Princeton's size categories are designated by the roman numerals I, II, III, IV, and V. In the original plans, the designations were alphabetical A, B, C, D, and E, but these were changed because of the possibility of confusion with the Library of Congress classification. Books which measure over 16½" are labeled "Elephant." Books which measure in different sizes, although part of the same set, are assigned to the different sizes, togetherness being subordinate to compactness.

The size for each call number recorded on the master sheet is written next to that call number. A small "self-adhesive" label, about ½" by ¾" is affixed to the spine or front cover of the book, to show the roman numeral size category in which the book should be shelved. In case this label comes off, ANNEX LIB. is stamped on the inside cover of each book where its call number is again noted, should the call number on the spine be unreadable. A smaller stamp, ANNEX, is stamped on the circulation cards, in order to distinguish the normally circulating Annex book from other books which circulate for different periods of time. If a book has no circulation cards, none are made until the book is circulated.

When a request to de-Annex a book is received, the adhesive label is removed from the book, the ANNEX LIB. stamp on the inside cover and the smaller ANNEX stamp on the book cards are crossed out. The book is then ready to be reshelved in the open stacks.

#### CATALOGING AND RECORD KEEPING

The simplicity of Princeton's storage

procedures derives from the fact that no change is made in the given identification of a book. The classified call number is retained as the primary element needed to identify and locate each book in storage. The size of book is the second element needed because, as mentioned earlier, books are stored in classification order within each size.

Because books selected for storage are removed from assigned and known locations in the stacks, it is imperative that all cataloging records for each title (*i.e.*, shelf list card, main entry card, and all secondary entries) show the new location as quickly as possible. A complete record for all books in all the Princeton campus libraries is kept in the Firestone Library, where books are centrally cataloged. Each outside library also maintains its own main and secondary entry file; cards in these files, too, must show the new location of books transferred to the Annex.

The Annex staff can indicate this transfer in all the above-mentioned records without removing any card, except the main entry card from the public catalog in Firestone, and without writing on any card, except in a few special instances. This is accomplished by slipping a pre-printed plastic envelope or "card protector" of .002" Mylar (Demco #28-681) over every card as indicated in the tracings on the main entry card. The slip is imprinted within ½" or ¼" from the top of the slip with a roman numeral for the size, the Annex location, and brief directions for retrieval. The great advantage to using these slips is that by simply removing them from the cards a book is reinstated to its former position in the library. The greatest disadvantage is that their use expands the catalog by one inch for every 250 cards slipped. Postulating five as the average number of cards per title, these figures indicate that the catalog will expand by one inch for every fifty titles stored.

The Annex Library's record of books in storage is its shelf list, a classified card arrangement in which the sizes are interfiled. It is used not only to check whether a title is in the Annex but also as a cross-reference from call number to size. The call number, author, short title, place and date of publication are typed from the library's shelf list. Besides bibliographic information, a card may indicate multiple volume and copy information. The size designation is taken from the master sheet and marked in red ink on the typed card. The shelf list card from which each typed card was copied is slipped with an appropriately sized plastic slip. The typed cards are then used in the record changing process at the catalog, after which they become part of the Annex shelf list.

The basic processing routines are explained in the "Annex Library Procedures Manual," useful especially in training new personnel and for maintaining uniformity.

The average cost of processing an Annex book and to change the catalog record is forty-eight cents. This price includes the cost of supplies, as well as of labor. The average was obtained by combining the cost of the labor of the professional and nonprofessional workers, as both perform the book-processing operations.

#### TRANSPORTATION

Most books are sent to the Annex Library on large 54½" by 42½" book trucks aboard the library's mail delivery truck. If the books are fairly small, more than 400 volumes can be shipped at once. This method of transport requires, however, the existence of docking facilities, which are available at both the Firestone Library and the Annex Library. Branch libraries without docking facilities must send their books in boxes to the Annex office in Firestone, where they are processed and then sent to

storage on the book trucks.

#### COMPONENTS OF RETRIEVAL

Retrieval of books from the Annex Library operates on a principle similar to interlibrary loan. An individual at the main campus may either borrow a book directly from the Annex by going there himself or he can borrow the book through one of the campus libraries. Most circulation from the Annex is indirect—from the Annex to a campus library and subsequently to the borrower. Annex books circulate to any authorized borrower regardless of status for the duration of the academic year. This policy was established to make the use of Annex books more attractive, especially to those borrowers whose loan period is normally limited, such as undergraduates and graduate students. Like other library books, an Annex book is subject to recall for another borrower after it has been charged out for two weeks.

Several forms of communication between the main campus libraries and the Annex were explored before the method now used was chosen. The main requirements for any communication equipment were: (1) that it not require the presence of the shelver who cannot always be in his office; (2) that it be available to all the campus libraries; (3) that it not be prohibitively expensive. The ordinary telephone was eliminated by the first requirement. Simple variations of it—extensions and loud bells for the storage area were thought to be too clumsy, interrupting and perhaps startling the shelver in the middle of his work. Facsimile transmission was eliminated by requirements two and three. It would be too expensive to place transmission units in each of the campus libraries, although this means of communication was considered to be the least error-prone. In the end, it was decided to use the Bell System's "Electronic Secretary," a telephone-answering and re-

ording machine. It requires only a regular telephone to transmit information from the campus libraries; it records and holds spoken book requests until the shelver has time to take the messages, and is fairly inexpensive to lease (\$28.80 per month).

In order to avoid abuse of the recording device, its extension number is given out only to those circulation departments or services, such as interlibrary loan, which regularly request Annex books. It has been found that this machine works well for the purpose, despite the disadvantages inherent in delivery of messages by telephone.

In addition to the "Electronic Secretary," there is another telephone, whose number is available to the public. If the shelver is not in the office, however, this phone goes unanswered.

Books are carried between the main campus and the Annex Library twice a day, once in the morning and once in the afternoon. Therefore, the waiting time for a normal Annex book request is never more than twelve hours for a book wanted at the Firestone Library and rarely more than twenty-four hours for a book requested by other campus libraries.

#### CONCLUSIONS

The fundamental principle underlying all policies formulated for the Annex Library is to make the idea of compact storage as attractive as possible to all concerned. From the beginning, the Librarian consulted with the faculty and the library trustees on the subject, always keeping them informed of new de-

velopments, with the hope that an enlightened public will be an understanding one. In light of this principle, the importance of such key elements as the following cannot be overemphasized.

Factors which were deemed important to faculty, student body, and other users of the library included: (1) selection with faculty assistance or review; (2) reversible selection; (3) quick retrieval time; (4) browsability; retention of open stack concept; (5) slipping all catalog records to show Annex location; (6) direct circulation from the Annex Library, as well as indirect circulation; (7) full academic year loan period, regardless of status.

Factors which were considered important to librarians and library administration included: (1) no change in established cataloging and classification; (2) all work done by an independent department; (3) fast adjustment of all cataloging records, so that the time gap between moving the books and indicating their location is minimized; (4) repair of books which are falling apart and would not last long if stored in their present condition; (5) temperature and humidity control to prevent decay of book materials.

#### THE FUTURE

The Annex Library is designed to be a continuously functioning operation. Access to books stored therein will always be needed. Provision has been made in the original construction to expand the capacity of the building in the future.

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