A library for the twenty-first century: the Galter Health Sciences Library's renovation and expansion project

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A renovation and expansion project at the Galter Health Sciences Library of Northwestern University strikes a balance between traditional and future libraries, library ambiance and high technology, old and new. When guided by a vision of future building use, renovation projects can succeed in meeting many institutional goals as a viable alternative to new library buildings. Issues addressed include planning considerations, architectural history, library design, building features, information technology considerations, and ideal library space design when new construction is not possible.

INTRODUCTION

A quotation from Ovid's *Metamorphosis* provides an apt description of the Galter Health Sciences Library's recently completed renovation and expansion project: taking something old and making it "new and wondrous."

Partimque figuras retullit antiquas, partim nova monstra creavit. "We took part of the old and built something new and wondrous."*

Indeed, the quotation could describe any building renovation, and reinforces the commonly held definition of the term: "to restore to an earlier condition, as by repairing or remodeling" [1].

In library planning, renovation is an important alternative to building new space; this observation is especially true at Northwestern, where the medical center is already constrained by the limited availability of real estate. However, owners of many libraries that lack a distinctive architecture or that proved incapable of supporting library functions may not want the library returned to an earlier condition: what was bad should not be restored. That does not mean nothing can be done. When renovation or restoration proves inappropriate because of a site's initially bad design and poor functioning, recall the second definition for renovation: "to impart new vigor; to revive" [2]. Both the desire to restore Northwestern's old library as something new and wondrous and the need to impart new vigor to the library's future role in an academic medical center formed the basis for the Galter Library's renovation and expansion project.

As in many library building projects, the initial driving force in a renovation and expansion project is an attempt to address the physical space needs of staff, users, and collections. In Northwestern's case the transformative influence of information technology helped shape the vision of the library of the twenty-first century, expanding the initial objective of gaining new space. This new vision, addressing both space needs and information technology, reminds administrators, library staff, and users that the Galter Library's building program meets current demands for space and responds to future applications of information technology.

In 1990, Jack and Dollie Galter, Chicago philanthropists, gave a $10 million gift for the renovation and expansion of a health sciences library for the medical and dental schools, helping to realize the vision with funding and commitment. The gift not only initiated the planning process for renovating physical space but

* The quotation is borrowed from Mark Nelson, president and founder of Ovid Technologies, Inc., who, when asked to explain the naming of his company, said, "The name occurred to me in 1992 when we were developing an extremely enhanced version of CD Plus software . . . [and] I remembered the line from *Metamorphosis*." Hence the name Ovid.

also funded elements of the electronic library. When construction started and disruption began, the electronic library served as an alternative site for conducting library research. Building the basic electronic library first allowed the library staff to begin preparing users for innovations in the use of electronic, knowledge-based research tools.

Planning considerations

Recent advances in information technology have caused many within and without the library, information, and health sciences professions to reconsider the value of building libraries to store large collections of print volumes. Hodges points out this issue at Vanderbilt [3], and Crawford alludes to the same issue at Washington University [4]. Lucier discusses the changes made to the new library building at the University of California, San Francisco, in order to address significant environmental forces at work in California, not the least of which is a desire to begin building the digital library of the health sciences [5]. The shape and function of health sciences library buildings, whether for housing staff, users, collections, or technology, remain important enough to have been the topic of a symposium sponsored by the National Library of Medicine and the University of Maryland at Baltimore in 1994 [6]. New buildings generate much interest because they address pressing issues, but renovation projects face the same issues under a different set of constraints.

Galter Library planning began in 1991 and continued until 1994. A description of the structured planning process appears elsewhere [7]. Various planning subcommittees faced special challenges. Those involved with information technology had the difficult task of predicting the future: What technologies should the new Galter Library support, what shape would those technologies take, and what space and infrastructure would be required to house them? For example, the subcommitee considered the importance of fiber optic cable at the desktop and the potential use of radio wave technology instead of cable. Many meetings exasperated those attending. As one faculty member quipped, "If we knew what the future would provide, we would ask for it right now." The subcommittee on information technology ultimately recommended the installation of conduits throughout the new building with the assumption that new wire-based technology would appear in the next five to ten years.

The library functions subcommittee addressed traditional library functions such as cataloging, circulation, and reference services. At the time, the subcommittee dared not predict the end of the book; all believed that the print format would remain a viable means of communicating scientific information. Everyone agreed, however, that the future pointed towards electronic documents, although at what date electronic documents would dominate scientific communication no one could, or would, say. The subcommittee concluded that printed information needed support in the future. Flexible storage would offer another insurance policy for meeting the print collections' future space needs.

The functions subcommittee initially recommended 80,000 net square feet to provide space for library staff, users (based on predictions of student populations for the next five to ten years), and collections (using the most recent growth figures). However, the Medical School had only committed 45,000 net square feet to the new library. More realistic projections, and a recommendation to use compact shelving in the lower level stacks, solved the issue of future volume storage and brought the library's program of requirements into line with both the project budget and the school's space allocation.

The provision of a special room housing a leisure reading collection to provide students some relief from their studies was the chosen means of honoring the library's benefactor, Dollie Galter. Mrs. Galter associated libraries with great books, and the role and power of the public library inspired her to support Northwestern's new library. Today, Dollie's Corner, as the leisure reading room was named, occupies a special place within the new library.

Architectural history

The history of Galter Library dates to 1925 when Northwestern University began building a professional school campus in Chicago. The largest of the new campus buildings, the Montgomery Ward Memorial, houses the Medical School and Dental School. The Medical School library (Figure 1) was featured on the first floor, near the building's lobby; a separate Dental School library was located within the same building on the tenth floor. The Medical School constructed more buildings in 1952 and 1964, and with this last addition, the Medical Library was first expanded (Figure 2).

The original 1927 Medical School library was distinctive in style. Built as a single room, it featured a Gothic arch over the library entrance and a beamed ceiling decorated with colorful stencils. Busts and portraits of the schools' founders and past scholars looked upon rows of study tables, and tall windows admitting light on three sides of the room provided a historical ambiance that reflected the Gothic style of the buildings' exterior. A large reference and circulation desk dominated the center of the room and provided access to the lower level stacks. To deans and faculty, the library was special. In fact, Medical School Dean Irving Cutter made the library his pet project. A for-

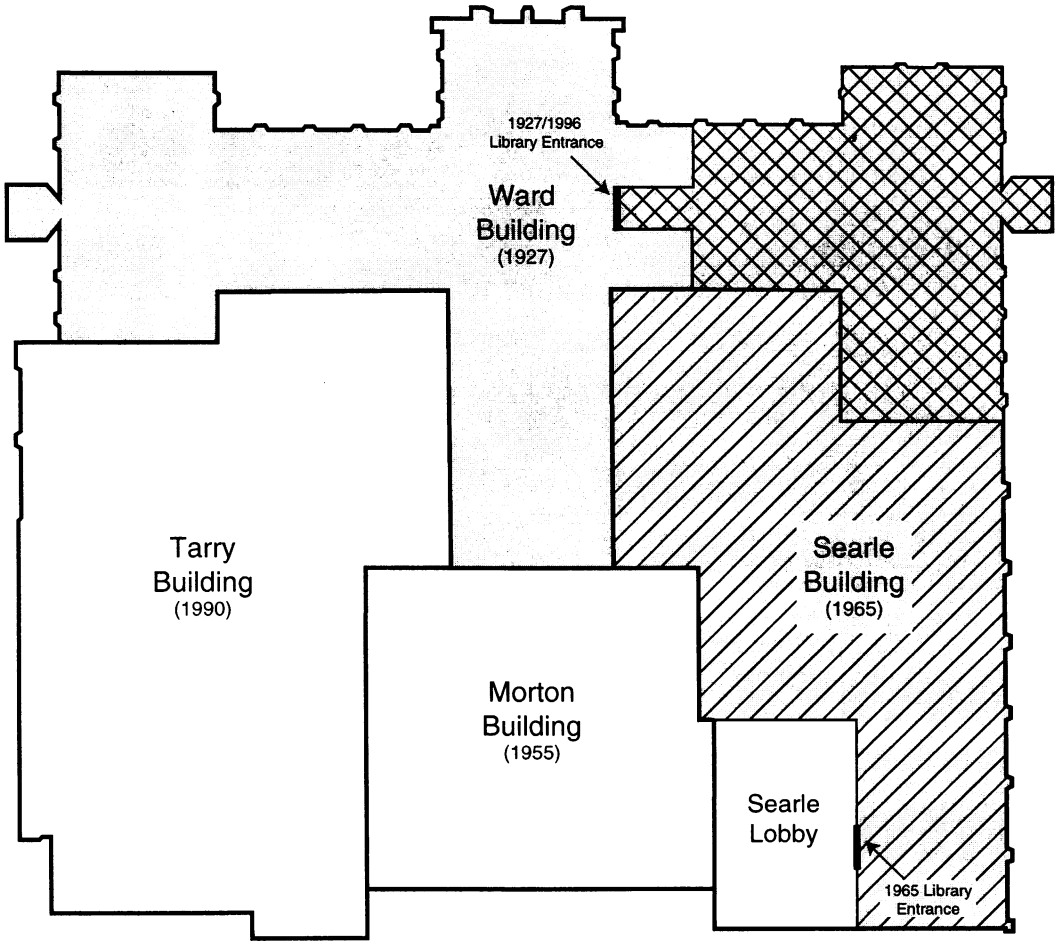
Figure 1
Postcard of the Archibald Church Medical Library made by the Teich Postcard Company of Chicago to commemorate the new library in 1927

mer book salesman, Dean Cutter believed in libraries as the heart of the university. He collected widely and, along with the librarian, quickly began to fill the new library. Dean Cutter's efforts in collecting rare books and manuscripts rivaled those of his colleague at the Yale Medical School, Dr. Harvey Cushing. Cutter's ambition gave Northwestern a significant reputation in the 1930s; his collecting efforts resulted in Northwestern having at one time the third largest medical library in the United States and Canada.

The predominant library philosophy that bigger collections meant better libraries guided the actions of early Northwestern librarians. Beginning in the late 1930s, the librarian's annual report frequently mentioned the need for more space to house the growing collections. This demand lasted into the 1960s when a Medical Library expansion into the adjacent Searle Building provided relief. However, this expansion was a radical change for the library. Its distinctive appearance was sacrificed to introduce air conditioning; the decorated ceiling beams were covered and used to hang the new duct work. The library's entrance was also moved to the lobby of the Searle Building.

While the 1964 expansion provided more space for staff and collections, this space quickly became inadequate when collecting increased in the 1960s and early 1970s. With the addition of new staff, study rooms planned in 1964 became staff offices by 1980. The expansion design also created serious problems. When the old library expanded into the new Searle Building, the architects designed a stack tower to fit inside an interior core created by the Medical School's three adjoining buildings. This design created a series of rooms: a reference room, a reading room, and small, self-contained stack floors. The resulting footpath proved troublesome; the movement of staff, users, and collections became difficult. The 1964 expansion also required keeping the new space at the same level as the original library, which was built below grade, and the extra steps between street level and the library floor frequently caused problems for moving materials. Other problems included leaking pipes, multiple levels, and no air conditioning in the lower-level stack space.

Figure 2
Outline of Northwestern University's Medical School–Dental School buildings

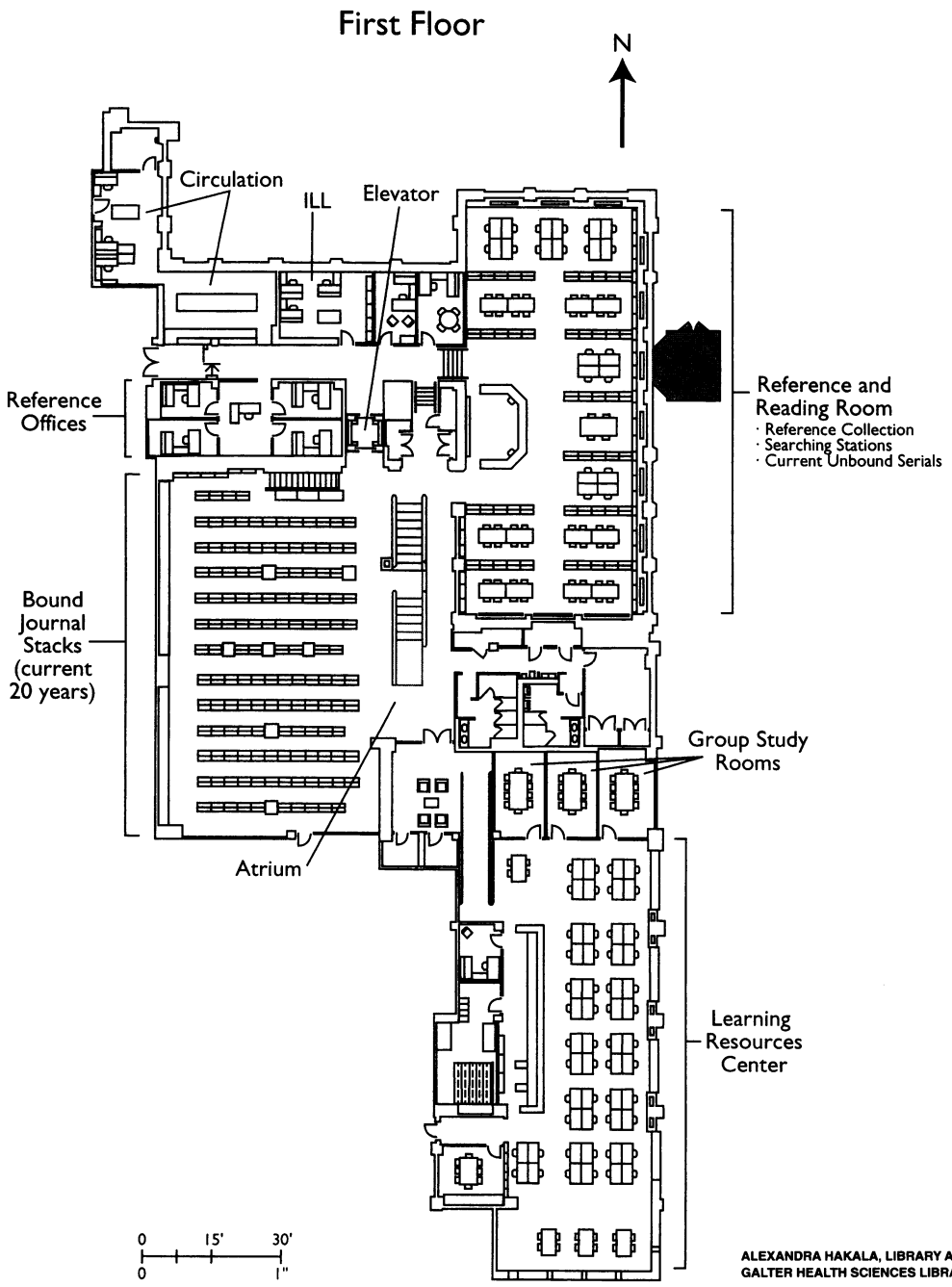


As time passed and space constraints increased, library leadership started to introduce the idea of yet another expansion. Library staff also became intrigued with pictures of the original library. A memento postcard of the 1927 library displayed what really lay underneath layers of paint and false ceilings. In addition to the need to redesign the library for more space, the desire to restore the old library as a grand space started to take hold, at least among the library staff. These ideas were presented to the architects competing for the design project of the new Galter Library, though only one firm took seriously the idea of restoring the original library as a plan for expansion. The job of renovating and expanding the library was awarded to the architectural firm of Holabird & Root, ironically the same firm responsible for expanding the library in 1964. In the minds of library staff, the Holabird & Root team had an opportunity to correct the deficiencies created in 1964.

Library design and building features

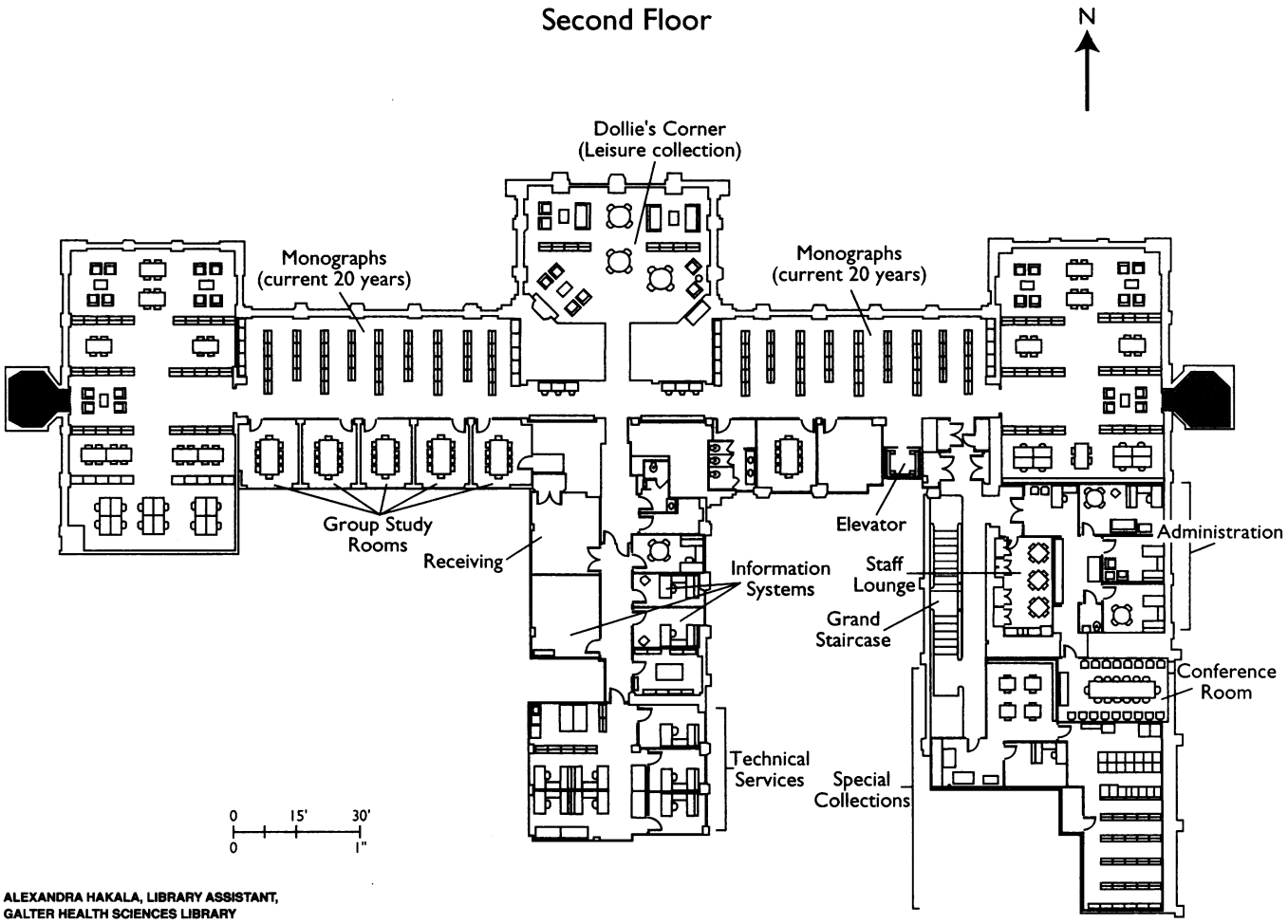
The Holabird & Root (H&R) plan for the new Galter Library was to return to the original 1927 space and

Figure 3
Galter Library floor plans: first floor



emphasize a renovation centered on the best architectural features already in place. The H&R plan meant radical changes, such as moving the library entrance back to its original location in the Ward Building lobby (Figures 3–4). The change of entrance would direct users toward the center of the renovated space, which was the library's original room. This area would be assigned to reference, database searching, and current journals. The architects drafted plans to redirect heating and ventilation in order to expose the ceiling beams and have them redecorated with the original design and coloration. In addition, the architects rec-

Figure 4
Galter Library floor plans: second floor



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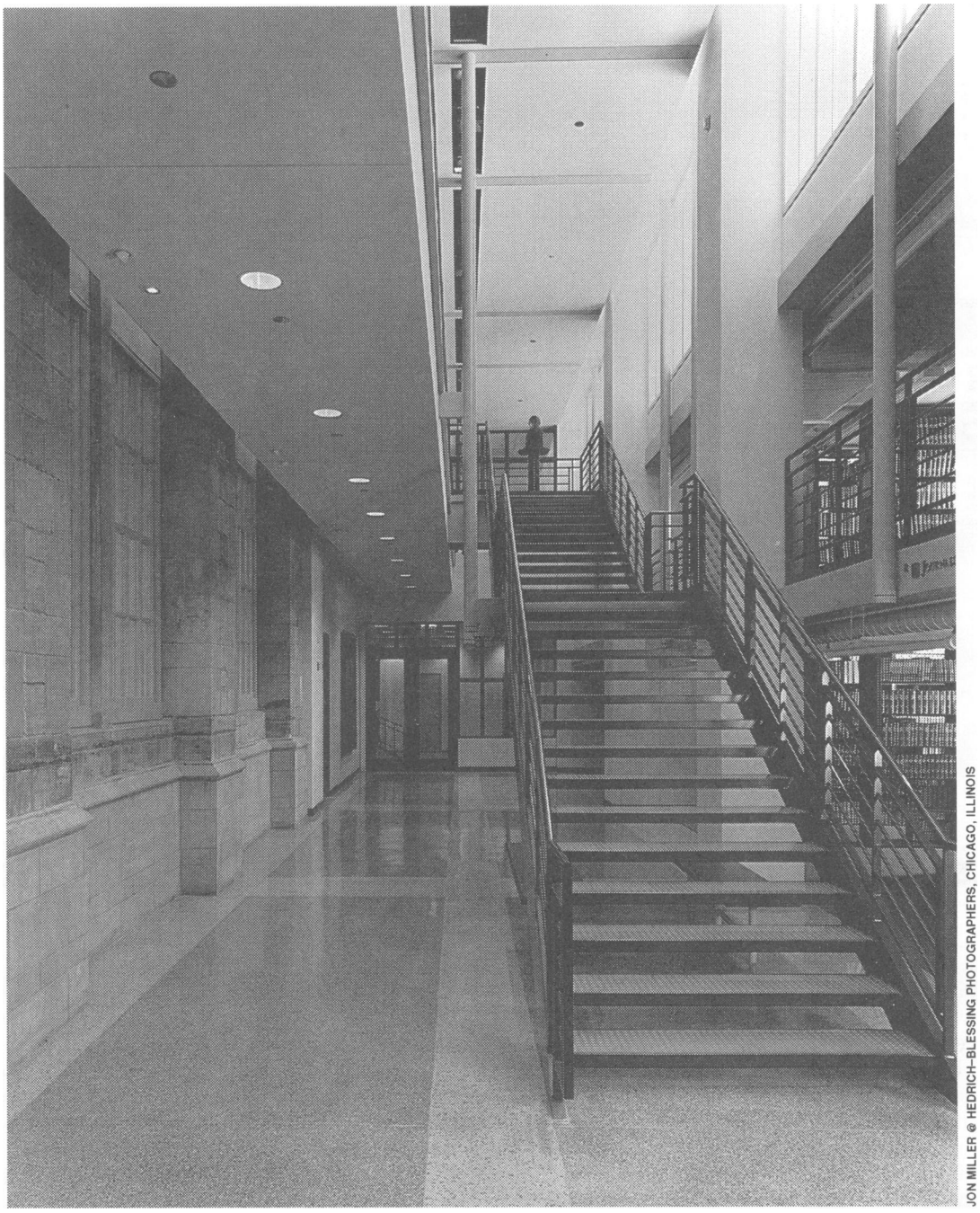
ommended the use of decorative, leaded-glass windows containing symbols for medicine and dentistry; the windows were salvaged from a campus auditorium destroyed in the early 1980s to make room for an expanding law school. The leaded glass was backlit and located in the same frames that held the library's original south windows, which now are part of a common wall with the adjacent Searle Building.

The architects designed a central atrium with a grand staircase rising from the main entrance corridor and adjacent to the new reference room (Figure 5). This space was planned to serve as a core that would reunify the 1927 and 1964 library spaces. Raising part of the roof of the old stack tower into the Medical School's interior core of buildings created the atrium. Clerestory windows at the roof allowed natural light into the center of the library's space; when the stacks were redirected (from north/south to east/west) on the first and mezzanine levels (the stack tower), the natural light reached the windowless core of the library. To enhance the light as much as possible, the architects recommended glass treads on the grand staircase to filter more light into the interior space. The stack tower was originally built to house as much shelving as possible and proved to be the only place where primary storage could be located in the entire library. The stack tower now contains the library's current twenty-year collection of bound journal volumes. Even in such confined space, the H&R team designed the stack floor plan to provide a "feeling" of great space. Current aisle widths in the stack tower range from 41 inches to 51 inches; these wide aisles compensate for the low ceiling height of 87 inches (the stacks height is 84 inches). Photocopy machines stand in one corner of the mezzanine, while the interior walls of the stack tower support study bars with electrical and net-

Figure 5
View of grand staircase in library atrium with entrance to the Barnes Learning Resources Center in the background



work connections for user access to the university backbone.

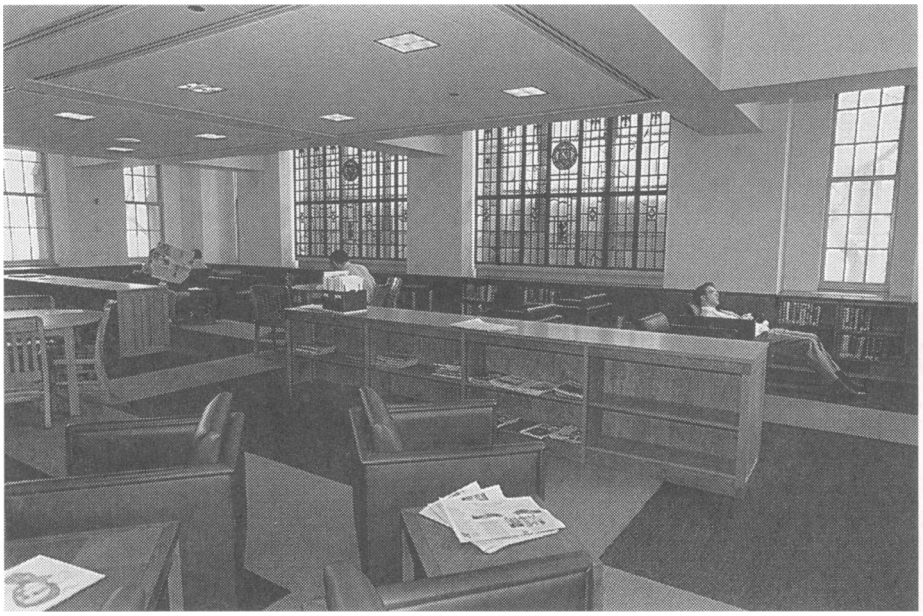
At the end of the atrium opposite the entrance corridor and the new reference room, the architects located the Barnes Learning Resources Center (LRC) (Figure 6). While the LRC was previously situated outside the library, the new location is contiguous with all the library's departments. It also provides ample space for expansion. The new LRC currently houses fifty carrels, each supporting a network-connected computer (either a Windows 95 or a Power Macintosh machine) or other hardware for use with the library's

Figure 6
View of the Barnes Learning Resources Center

nonprint collections. In addition, space exists for the media librarian's office, support staff work areas, compact shelving for the media collection, and four group-study rooms. A lounge area at the LRC entrance provides additional seating for informal meetings. One major construction issue in this space was the need to raise the floor to provide conduit channels necessary for supporting the heavy use of technology. As a result of this need, the building lost ceiling height and the extra drama such height provides.

The entire second floor of the Ward Building became new space for the Galter Library. Here the architects located the current twenty-year book collection, library offices (administration, systems, technical services), and Dollie's Corner (Figure 7). A bridge leads users from the top of the grand staircase, past the new historical reading room and special collections department, over the atrium, and into the second-floor library space. On the bridge, the user passes display cases located in the Ward Building's original second-floor window space; the cases contain exhibits from the library's special collections. At the end of the bridge and behind the display cases is the library administration suite, which includes a staff lounge and staff conference room. Since the Ward Building is shaped like the letter E, both ends of the second floor offer reading rooms that are naturally isolated and provide areas that are conducive to study. Each reading room has study tables, chairs, lounge seating, and networked carrels. To take advantage of the available windows and to minimize stress on the floors, the architects recommended placing stacks in the reading

Figure 7
Dollie's Corner, which houses the Galter Library's leisure reading collection



rooms that are widely spaced and only 64 inches in height; the one solid wall in each room supports portraits of the schools' leaders. Aisle widths for the second-floor stacks range from 51 inches to 64 inches; stack heights along the east-west corridor are 88 inches.

The architects placed Dollie's Corner in the center of the second floor in a space that juts out over the Ward Building's entrance on Chicago Avenue. A sizable room, the space features windows on three sides overlooking the neighborhood park and Chicago's new Museum of Contemporary Art. Bookshelves below the windows surround the room. A fireplace mantel taken from the Dental School's old faculty-student lounge occupies one corner. Made of black walnut, the mantel has special significance for the Dental School as it honors celebrated Dean Green Vardiman Black, considered the founder of "modern American dentistry." Opposite the mantelpiece a similarly shaped display cabinet shows various alumni donations and related artifacts.

Throughout the library, the color scheme is earth tones of brown, beige, and rust-colored red; these colors complement the coloration in the reference room's ceiling stencils. White oak is the most common casework material and is stained to reflect the library's predominant use of red. Public furniture features Mission-style tables, chairs, and carrels. Lounge seats are upholstered with red leather or fabric. Lighting varies throughout the library. Fluorescent tubes predominate, but appear in different forms and configurations. For example, fixtures above the stacks reflect upward, while those used in offices and group rooms feature standard four-foot fluorescent tubes with special reflectors. Spotlights shine on the exposed limestone walls in the atrium, and chandeliers hang from the reference room ceiling. All together, the furnishings, lighting, and architectural features give the Galter Library a special, traditional library ambiance.

At the end of the twentieth century, however, ambiance alone does not ensure the success of a library. Technology defines the future of libraries, and the Galter Library staff planned for many technological applications within the new space. Conduits exist throughout the library. The architects asked about all locations where technology might reveal itself in the future. Library staff responded by identifying locations in all staff offices; workrooms; all study areas, such as the LRC and reference room; and in all stack areas. The extra connections established are currently covered by library surfaces and will be brought to the surface as needed in the future. Router locations were planned for each floor of the library to make future expansion easy and efficient. Cabling was acquired in accordance with the university standard of using Ethernet instead of unshielded copper wire; fiber optic cable to the desktop was ruled out as unnecessary for library functions in the foreseeable future. As a result of careful planning, more than 200 network connections exist within the new Galter Library: in the ten group-study rooms (or mini-classrooms, since they were designed to support problem-based learning as well as small-group or individual study), in the staff conference room, at all carrels, and at the study bars

in the stacks. The systems department is responsible for maintaining the public and staff equipment, checking network connections, and providing access to the library's configuration of servers. A separate computer room provides work and storage space for systems' operations.

DISCUSSION

The Galter Library project raises several discussion items. First, libraries are not disappearing, despite the advances in technology. Rather than replacing the need for space, technology demands its own space. Information centers, learning resource centers, and computer labs—whatever name is used—all require space to bring users together with the technology that assists them in searching, identifying, and retrieving information. In addition, centralized technology demands space for locating conduit, cable, routers, and communication cabinets. Space is also required for the people who manage technology and support its use. Libraries remain a focal point for the institutions they support, and the application of information technology to library-related functions only helps the evolution of libraries into entities that are more relevant to the users they serve.

Second, libraries are still needed as people places. Users demand a place for three essential functions: seeking assistance in information retrieval, using and storing the vitally important and frequently used resources shared by the local community, and retreating from other pressures. Plenty of users want libraries to be what they have always been: a quiet place to read something good and enlightening. Most importantly, libraries are the place to find librarians and information professionals, those responsible for acquiring, organizing, and disseminating information resources and for solving access problems. While the health sciences library will continue to be the users' "laboratory of the mind," it will also evolve as the librarians' and information professionals' "college."

At the same time, health sciences library administrators must remain attentive to their users' changing information needs and the environment in which users operate. They must plan the right kind of space to meet current needs, and needs not yet fully expressed. In the Galter Library project, the renovation objective evolved from one primarily concerned with finding more traditional storage space for a greater number of stacks to one in which planning a technologically sophisticated space for meeting the information problems of the twenty-first century was the principle driving element. The project achieved a balance of competing demands through the provision of comfortable and practical people space for everyday working needs, easily accessed collection space with growth provisions, and a place where current and future technologies are expected to be available for everyday use.

Ideally, twenty-first century library space should bring people, resources (regardless of format), and technology together in one grand area. In this ideal space, the primary library tool, the computer, would command the most attention, since information access and storage would be primarily electronic. Space for staff offices, service points, special development areas for creating new resources, and lounge seating would be nearby; stacks for historical materials would be at the periphery; and rare books and other special collections would be kept in a space that would highlight their uniqueness. Although an ideal configuration in the abstract, such a hypothetical library can clash severely with the reality of existing architecture.

Early in the planning of the Galter project library leaders attempted to determine whether this ideal library space could be achieved at Northwestern. Assuming the old library entrance could not be changed, library leaders presented the architects with the question of whether it would be possible to combine the reference room function (searching databases like MEDLINE, the online catalog, the Internet, and the World Wide Web) with the typical LRC function (computer use for computer-assisted learning, production work like word processing, e-mail, etc.). In the old Galter Library, the reference space and adjoining first-floor stack space were thought to be the best area in which to create the ideal twenty-first century library. In the final plan, however, the first-floor stack space had to be used as primary stack storage since no other area in the planned library could support the same or a greater amount of stacks. This decision was supported by the following assumptions: print technology remains a prominent communication medium; electronic journals and texts are not yet widely available; the library has a very large investment in current and historical print resources; and the existing architecture imposed significant limits. While the current design works remarkably well for Northwestern, library leaders will still need to look elsewhere for the ideal health sciences library of the future.

A significant, practical point about renovation work is that library staff and users must live with it while construction is taking place. Construction work must often occur in phases, since the institution may lack sufficient space to house a library and its many functions while the renovation is under way. Multiple moves prove troublesome and frustrating to all. Therefore it is most important to remember the ultimate result: the new space and functions will be far better than the old.

User and staff reactions indicate that the Galter Library project is a huge success. The new library appears busier than ever. Faculty are routinely impressed by the layout of resources, the ease of finding infor-

mation quickly, and the understated elegance of the renovation. Students are very pleased and impressed as well. Soon after the library opened, staff overheard students telling each other how wonderful the new library space was for them. Group rooms are in heavy demand, and students comment favorably on the system of reserving rooms a week in advance. Students are most impressed by the new LRC. Carrels undergo routine, everyday use by students and residents for checking e-mail, writing reports, and studying with various computer-aided instruction (CAI) resources, many of which run off a server rather than individual hard drives or CD-ROM drives. Each carrel provides plenty of user privacy and often hides evidence of heavy LRC use. Not unexpectedly, staff feel relieved, not only because the project is over, but also because they "feel more professional" in new surroundings and have more "breathing space" and new resources with which to work. Staff find very little they would change or do differently; in fact, the new footpath, space configuration, and technology plan work so well that the library would still be a major success without the special "touches" that contribute to its ambiance. Minor irritations such as the need to add more corner guards, find "more durable paint," and provide hassocks for users who find the library ideal for "putting their feet up" reflect a desire to keep the library looking new for as long as possible rather than a list of complaints.

CONCLUSION

Northwestern's Galter Health Sciences Library is a recent example of the value found in renovating existing library space when new construction is impossible. The Galter Library's design takes advantage of existing structures in unique ways, and the resultant floor plan improves the movement of users, staff, and materials. In this regard, the Galter Library is a success. On another level, the Galter Library demonstrates the balance achieved in combining new technologies with traditional library storage and work space for users and staff. Success in reaching this balance can surely be a hallmark of library buildings as they evolve in the twenty-first century.

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APPENDIX

Fact sheet

Opening	March 18, 1996
Dedication	August 29, 1996
Architects	Holabird & Root, Chicago, Illinois
Construction management	Schal, Bovis, Inc., Chicago, Illinois
Budget	$10 million
Size	45,000 net square feet; 57,000 gross square feet
Construction type	Renovation and expansion
Units served	Programs of the Medical School and Dental School
Floors	Five levels: lower, first, entry, mezzanine, second
Occupants	The library
Storage capacity	300,000 volumes
Network stations	Fifty-nine public; twenty-five staff
Network connections	More than 200
Seating	471 public seats at carrels, study tables, study bars, lounge areas, or ten mini-classrooms
Staff	Fifteen professional positions; fifteen support staff, full-time
Architectural features	• Central atrium with grand staircase • Restored original 1926 medical library with stenciled ceiling decoration, leaded windows, Gothic arch • Dollie's Corner: the leisure reading room with fireplace mantel, memorabilia display, leaded windows • Mission-style furniture for public seating • Color scheme of beige and rust with white oak trim stained "autumn"