



Library Buildings

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AMONG THE MORE visible changes in the library field during the past one hundred years is the development of the library building—its appearance, arrangement, structure, equipment, and atmosphere. Not only are there many more buildings, they are immensely more complex, varied, and sophisticated. Just as all library materials and services have evolved into new forms and techniques, so have buildings changed to reflect and encourage these new responses to the needs of the various communities and subcommunities which make up our nation. It is the purpose of this paper to examine a century of library architecture in relation to the changing perceptions of library functions, the development of building techniques and materials, fluctuating aesthetic fashions and sometimes wildly erratic economic climates.

In an arbitrary fashion which may annoy some, I have divided the century into several periods of unequal length. Naturally, there were exceptions to patterns, and I shall attempt to note the most important (or egregious) of these. First, there will be a description of the scene in 1876, followed by a summary of the developments until 1892, a period which can only be called “floundering.” Next will be a larger section on the “monumental,” from 1893 to 1950, with a subsection on 1939-50, which might be called the “dawn.” The period 1950-76 has already been called a “golden age,” certainly in terms of quantity if not always of quality. I prefer to think of it as simply “the modern,” for while we have made many advances during the past twenty-five years, we may not have yet reached full maturity. Given the present state of the economy we may never attain that stage; one can only hope. A final brief section will offer a few thoughts on this notion.

It must be noted that, even though there is a huge body of material

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on library planning and building dating back to the 1870s and even earlier, there is relatively little on the history of library buildings. To date, there have been just two comprehensive bibliographical essays which might lead a researcher to useful material. The first, by Donald Thompson, deals chiefly with secondary sources. The second, by Donald Oehlerts, emphasizes primary sources and research studies.¹ There is no single article or book which pulls everything together. Neither is this article such an attempt, but perhaps it may serve as a first step. A general survey of the whole picture can hit only a few high spots; a comprehensive study would involve far more than the secondary sources consulted for this article. It would be necessary to search many records of libraries and librarians, of architects and their firms, of universities and municipalities, and of foundations and government agencies. In short, even a modest attempt would involve much time, labor, expense, and courage. But it is to be hoped that it will be done.

1876-1892

From our hillside vantage point of 1976, looking backward and downward, we are inclined to be very superior about our professional ancestors' primitive notions of what librarianship was all about. Particularly offensive to our critical eyes are those occasionally monumental—more often merely dull—horrors that were called libraries. In what ways was 1876 significantly different from 1976, in terms of library building planning?

College curricula were still based largely on rote learning. The ideas of the seminar and elective systems were only just beginning to take hold in America. Library planning lagged behind these concepts for several decades, not really catching up until well into the twentieth century.

Institutions were small, and their libraries were especially so. Harvard had some 200,000 volumes in 1876; the Library of Congress had 250,000.² Collections were scattered; 19,000 of Columbia University's 32,000 volumes were in departmental libraries, and all of the University of Michigan's were.³ There were no library schools to provide guidance or training or leadership. There were no *professional* librarians, as we define the term today. Public librarians were for the most part well-educated gentlemen of letters assisted by volunteers. With few exceptions, academic libraries were administered, in the most primitive fashion, by faculty members who devoted a few hours a

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week to the additional and often unwanted burden of guarding a collection. The librarian was sometimes personally responsible for the safety of each volume.⁴ Hours were brief; in 1876, for example, while the library at Harvard was open forty-eight hours per week, that at Columbia was open only twelve, and at Williams, four.⁵ The emphasis was on retention and safety, not on circulation or other use. The notable exception to the common practice was the enlightened administration of Justin Winsor at Harvard.

Planning was generally haphazard, to put it mildly. Academic libraries were commonly designed by institution presidents, sometimes with the assistance of trustees, and usually without reference to faculty, including the librarians. Typical is Union College's Nott Library (1858), a handsome but dysfunctional octagon. Harvard's Gore Hall (1841) was originally planned largely by President Quincy, but considerably altered by a committee of trustees and faculty.⁶ It was a Gothic church, lancet windows and all, with alcoves and a great central nave. Both were built before 1876, of course, but illustrate the prevailing patterns. Public libraries were even more casually planned, and often consisted of a suite of rooms in a town hall or other public building.

Yet, even in this period of floundering, there were gleams of better things to come. In 1853, Charles Norton was the first to make theoretical suggestions about the planning of library buildings.⁷ In the 1870s, with the approval of the new librarian, Justin Winsor, Harvard added a functional cast iron stack wing to Gore Hall, the first such in America.⁸ By 1876, Winsor had a scheme for a seven-tier, million-volume library.⁹ In 1870, William Poole helped with the planning of a public library in Cincinnati, and by 1881 was beginning to plan the Newberry Library in Chicago, using a controlled departmentalization scheme. The exterior was planned *last*, in 1890.¹⁰ Half-built in the early 1890s, it was never finished, but serves today, after a fashion, with only minor alterations. Poole started writing about library building needs, outlining sound and lasting fundamentals in 1876. Finally, C.C. Soule published his ten points in 1891.¹¹

Important architects were involved in library planning during this period, but most simply did not know much about libraries, nor did their employers. Perhaps the most notable of these architects of historical importance was Henry Hobson Richardson, whose structures and influence on subsequent projects have appalled many librarians of later times.¹² Richardson designed five public libraries, four of them in Massachusetts, and one academic library at the

University of Vermont. Joseph Wheeler and Alfred Githens wrote: "It was a period of retrogression in functional planning; nothing constructive was developed."¹³ They were especially critical of the oppressively heavy, poorly lit, fortress-like quality of Richardson's adaptations of the Romanesque architectural style. Yet two of his public libraries, with highly successful additions and some alterations, appear to be functional today. Modern lighting and heating techniques have made these buildings more habitable, if not ideal, and have preserved what some architectural historians and librarians regard as originality. Unfortunately, what Richardson handled well (stone detailing, arches, remarkable brass and bronze fixtures), his imitators botched, usually missing the point altogether.¹⁴ Henry-Russell Hitchcock, however, regards Richardson as overly criticized and undervalued.¹⁵ Certainly no other architect of the nineteenth century has received so much attention as Richardson; his work was bold and innovative, even if he did lead others astray.

Although most of Andrew Carnegie's benefactions were built after 1893, his first donation was constructed in Allegheny, Pennsylvania, in 1890.¹⁶ It was less than completely successful, in large part because it was a combination of public library, auditorium, swimming pool, and other community services. All of these unrelated functions interfered with the functions of the library. This error in judgment and subsequent attempts at combined-services libraries have led most library planners to the belief that libraries generally should be libraries. As early as 1876, Poole had made this point.

Nevertheless, there was enough new thinking, aided considerably by the founding of the American Library Association and *Library Journal* and the consequent availability of forums for discussion and exchange of ideas, that by 1887 Josephus Larned could write: "we need not hesitate to say that American library architecture has distinctly taken a new departure."¹⁷

1893-1950

By 1893, a number of things had happened in the world of libraries which had major influence on library building planning. Academic institutions had almost completely changed their curricula. The new approach meant larger collections and greater usage both in and out of the building. Larger collections meant a new problem of housing, and the rapid development of the cast-iron (and steel, after 1897) bookstack. An increase in the number of users meant more and

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bigger reading rooms. The rapid growth of the concept of the card catalog, accelerated acquisition of materials and increased service to users all made more staff and more workspace necessary. New building materials and techniques gave new solutions to problems of construction, lighting, ventilation, heating, cooling, and fireproofing.

Unfortunately, an outside factor, which had been present in earlier years but had been seemingly under control, burst forth in all its mistaken glory: monumentalism. This disease manifested many symptoms through the next five decades, but at least in the earlier years it tended to take the form of eclecticism. Reynolds notes that the beaux-arts influence on the World's Columbian Exposition in Chicago in 1893 ended the passion for Romanesque which Richardson had touched off in the 1870s and 1880s.¹⁸ The new eclecticism was probably worse in the long run, since so many more buildings were affected. By the 1920s, according to Burchard and Bush-Brown, the beaux-arts disciples "became increasingly sterile."¹⁹ Standard styles, such as Gothic, Tuscan, Georgian (or "Colonial"), Classic, etc., were bastardized in the attempt to contain the vast study rooms, work areas, and bookstacks within suitably impressive facades. The idea of the master plan for campuses developed rapidly, with all of the resultant headaches for library planners. Thomas Jefferson had used the concept in an earlier era with exquisite taste and grace at Virginia, but in less sensitive hands in the nineteenth and twentieth centuries we have been offered the tastelessness and awkwardness of Miami (Ohio), Duke, Temple, Texas, and many other universities. Even the more stylistically successful campuses, such as Chicago, presented planning and functional difficulties for their librarians. Insistence on uniform cornice and window levels, for example, has frequently made rational planning impossible. Worse, in many cases, were the individual buildings which suffered under the hands of the monumentalists in their insistence on making the library the "center of it all." A perfect example is Columbia's Low Library (1900), a "gem" set in the matrix of the master plan of the rest of the campus. Another is Philadelphia's Free Public Library (1927), an outsized and forbidding palazzo in an impressive but inappropriate location.

This was also the period of generous, well meant, but sometimes misguided gifts, the terms of which often left many of the decisions concerning appearance (and worse, planning) in the hands of the donors or their representatives, even unto posterity. Harvard's Widener Library is just one of many examples of this situation.

While there were not many professional librarians in the 1890s,

there were a few, plus a solid cadre of self-trained and thoroughly professional practitioners. These pioneers laid the foundations over the next few decades for a system of professional education for librarians. Many of the leaders of the period were influential in the development of what might be called rational planning. Soule, writing in 1891, had already accused the architect of being "the librarian's natural enemy."²⁰ It was not many years before public librarians were joining their academic colleagues in searching for solutions to their growing problems.

Yet, for all the excesses of decoration and lack of attention to function, many striking gains were made in all aspects of library planning. If the path was not a straight one, and if there were many unfortunate lapses which frequently maddened the librarians, it was nonetheless a lively and interesting period in library architectural history, offering many lessons for contemporaries and successors. Increased interest in buildings meant more seminars, conferences, journal articles, visits, and other ways to profit from the triumphs and failures of others.

The first grand building of this new era was the Boston Public Library, designed by Charles F. McKim, of McKim, Mead and White. Situated in Copley Square, it had considerable competition for the eyes of its beholders, for it was across from Richardson's famous Trinity Church (1877). Whatever one may think of the romanesque style, or of Richardson's and his followers' renditions of it, Trinity Church is a remarkably strong building. "Viewed only as an architectural composition," wrote Burchard and Bush-Brown, "McKim's design was masterful. It picked up the theme of the arches of Richardson's church, but made it no other stylistic concession."²¹ Complete with grand staircase and murals, great hall, arcaded interior court, elegant materials and dignified facade, it remains one of the landmarks of American architectural history. A 1974 wing, really an additional building, by Philip Johnson has become the newest wonder of Boston. Again, Johnson has picked up only the cornice line hints of continuity of arches and windows; otherwise the building is completely contemporary in mood.

If McKim created an architectural monument which is admired to this day for its externals and decor, he also gave the nation's librarians a problem. Poole condemned the library in 1890, before it was built: "In libraries abundant light is more essential than facilities for fortification."²² William Warner Bishop called it "a building which had an enormous influence—chiefly a bad influence." After paying tribute to

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the beauty of the building and the richness of its contents, he continues:

But its following of palatial architecture results in a very small main door, narrow windows on the ground level (precautions most welcome against a mob), a great amount of space devoted to the magnificently conceived and decorated staircase well, a fine reading room across the front, separated from the stacks by a considerable distance, and a courtyard which forces books to travel around three sides of a square to be delivered at one side.²³

At the same time that Boston's public library was setting a trend, the new Library of Congress (1897) was reinforcing it. Admired by Bishop,²⁴ and by many others, it was about as monumental as a library can be, perhaps appropriately so, clad in "full classic panoply with strong touches of the Grand Opera House of Paris."²⁵ Successive additions have followed a later, more stereotyped and generally dreadful style that can only be described as "bureaucratic"—massive, awkward, depressing to look at, if largely functional in layout. The stacks of the original 1897 building were the first to be made solely of steel (as opposed to cast iron).²⁶

The New York Public Library's variously named lions repose benignly before one of the worst monsters of the nation. Finished in 1911, it is grand beyond all reason, with a railroad station-sized main reading room on the *third* floor; a huge double staircase; seemingly miles of overly wide and overly high corridors; and woefully inadequate staff workspace. It was Carrère and Hastings's chief contribution to library monumentalism.

The beat was set, and city after city joined the parade, putting up libraries that have drawn critical reactions ranging from mildly favorable to violently hostile in terms of both architectural style and planning. One, the Indianapolis Public Library (1917), has been called "the best classic building in America";²⁷ staff members frequently use other descriptions.

Whatever the details, the large buildings of the period had a few things in common, among them enormous operating expenses, varying degrees of dysfunction, and a depressing tendency to scare away the very people they were designed to serve.

One of the major events of this period was the infusion of millions of dollars into libraries and collections by Andrew Carnegie and his foundation. More than \$40 million went into 1,679 library buildings in 1,412 communities in the United States alone.²⁸ While reaction to

Carnegie buildings has been varied, they called the nation's attention to the public library in a most dramatic way. However, it is doubtful indeed that they added much to the development of library architecture. What seems remarkable is that they did no more damage than they did. Bobinski devotes considerable space to the architectural problems which plagued many of the Carnegie projects and to Carnegie's increased concern over the tendency of architects and local boards to throw common sense to the winds. So concerned did he become about the typical "imposing exterior . . . and poorly organized, space-wasteful interior" that Carnegie's private secretary, James Bertram, composed a memorandum reporting a policy of close architectural control. Conferences with leading librarians and architects led to Bertram's development of standards, first published in 1911 as "Notes on Library Buildings" [sic]. While more than one-half of the American buildings had already been built or approved, the remainder benefited from this and five later editions.²⁹ There were a number of prohibitions, among them fireplaces, smoking rooms, Greek temples.³⁰ Bertram waged war with a number of architects, and almost always won.

Actually, many talented architects were involved in Carnegie projects, among them McKim, Julia Morgan, and J.L. Mauran. Some of the buildings were, and remain, quite attractive, but all too many were dull, with awkward entrances (split-level), and very poorly lit and ventilated.

While most of the Carnegie money went into small towns and branches for larger cities, a number of central library buildings were erected, a fact which is often overlooked. Here the suggested patterns in the "Notes" were less applicable, and the results seem less stereotyped. The big difficulty in subsequent years, especially in smaller communities, has been to educate trustees and other community leaders to envision library buildings of a less imposing and more flexible nature.

New York's Carnegie branches—sixty-six in all—were all designed by three firms: McKim, Mead and White; Carrere and Hastings; and Babb, Cook and Willard.³¹ They are highly individual, at least on the outside, but share heavily monumental exteriors and stark interiors, the latter sometimes softened by later remodeling or redecorating. The description of the design process by Walter Cook in Koch's *A Book of Carnegie Libraries* is typical of the time.³² As might be expected, niceties of function were generally overlooked.

There were exceptional buildings. Wheeler and Githens refer to a

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number of buildings which they believed showed evidence of definite progress. Admirers of the "rational planning of the *École Nationale des Beaux-Arts* and the classical forms of the Italian Renaissance," they cite Providence, St. Louis, Newark, and a little later, Cleveland and Los Angeles, the latter being influenced by southwestern rather than Italian styles. Most of these have at least overtones of the monumental.

Nearly all public libraries build after 1900, and a few before, separated adult and children's activities. The idea of having meeting rooms predates Carnegie's involvement, by which time they were almost universal. Separation of adult services into delivery, or circulation, and reading and reference areas is found in some of the earliest libraries, but the idea of having separate departments for different branches of knowledge is a more recent development. While by no means the first library to have such units, the Cleveland Public Library (1925) was the first major library to be planned almost entirely on the basis of a series of reading rooms arranged around a central stack, with mostly open shelving, separate card catalogs, specialist staffs, etc. The great difficulty with the multidepartment plan within fixed walls is the inordinately large number of staff members needed for service and control. The older behemoths have only rarely been capable of some modification; the rest defy alteration and seem likely to survive as they are.

The so-called "open plan" introduced by Edward Tilton in the 1930s in Springfield, Massachusetts, with open shelf collections above and stacks below, was a breakthrough. This design heavily influenced Baltimore's Enoch Pratt (1933), Rochester (1936), and Toledo (1940).³³ More open in their planning and at sidewalk level, these libraries were much more approachable, relaxing, and functional. Bishop noted their similarity to department stores.³⁴ Furthermore, some have been capable of at least some remodeling, increasing functional efficiency and saving greatly in personnel costs.

Turning to the academic library scene, we find somewhat more innovation in design and development of functional planning, although there were again perhaps more exercises in creating grandeur than in achieving comfortable and workable libraries. Helen Reynolds's 1946 master's thesis, "University Library Buildings in the United States 1890-1939," is the most comprehensive study of the larger buildings.³⁵ She cited many factors on campuses which in turn created previously unheard-of service needs, at the same time that the craze for impressive buildings was at its height. The increasing

importance of the seminar meant small teaching rooms near books; at the same time, the large survey course was developing. The library had become the laboratory of the social sciences.³⁶ The question of centralization versus decentralization, not yet really solved on many campuses, came to the fore.³⁷ While some schools with no adequate central facility were forced into decentralization, others were taking that path deliberately, permitting and even encouraging the development of smaller, scattered collections. The sheer size and disjointed state of some campuses made this virtually inevitable. Other institutions preferred and maintained a greater degree of centralization, and went through series of buildings as holdings and other pressing needs increased at an unforeseen rate.

Reynolds notes that the period she covers divides naturally into two groups: 1890-1910, a transitional period; and 1911-39, modern buildings.³⁸ Her first example, the University of Pennsylvania's French Gothic library (1890) was indeed transitional in plan and eclectic in style. It was unusual for its time in that it could be added to without great difficulty. Additions were in fact made three times, before the building was abandoned in 1962 in favor of a new building. It serves today as the library of the University's School of Fine Arts.

A few basic forms emerged which, with variations, served for the next two decades.³⁹ Pennsylvania was linear in construction, that is, with major rooms generally in one line; Cornell (1891), Minnesota (1895) and Columbia's Low (1897) are examples of the "cruciform"; and the University of Illinois Library (1897) is an early "T", with a reading room on either side of the entry and with the stack behind. Reynolds writes that most of these "transitional" libraries had the main reading room, stack and loan desk on the main entrance floor, which was usually the first floor. As multi-tier stacks developed, sloping sites became popular, so that the middle tier could be at main floor level, others above and below, with the latter taking advantage of the slope for natural light. Cornell's building, now used as an undergraduate library, is an example of this structure.

The monumental library *par excellence* was Low Library at Columbia. It was designed by Charles McKim, with a great inner octagonal reading room three stories high, stacks underneath, and classic dome above. Other library and unrelated services were housed in four stubby wings off the central octagon, the whole forming a very neat Greek cross. One of the building's more notable inefficiencies was that the circulation desk was located in such a way that there was

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no direct contact with the stacks. Furthermore, the building was located at the center of a sort of "court of honor" in the middle of the campus. Such was the location, plan, and architectural treatment that enlargement in any direction was impossible. It has been admired as a latter-day Greek temple, but soundly damned as a library. Wilhelm Munthe called it an "historical monument to the triumph of architect over librarian."⁴⁰

Texas retained a "T" plan in 1911, but added a new feature which rapidly became almost universal in large academic buildings: The main reading room was on the *second* floor, with lesser functions on the ground floor.⁴¹ California (1912) and Widener (1915) followed closely: both were large and complex buildings; both were variations of the Texas "T" approach. The Widener Library was, of course, a memorial gift, with many peculiarities and restrictions, ranging from the grand staircase and memorial room, reminiscent of a religious shrine, to bans on alterations and additions. Widener did include stack tables and chairs (not quite carrels yet), one of the first major libraries to have them. Johns Hopkins's Gilman Library (1914) was another to take advantage of natural light from a large light court for stack study space.

William Warner Bishop, an early advocate of efficiency and sensible planning, wrote with particular pride of his (and Albert Kahn's) University of Michigan library of 1920, brought in for \$635,000—much less than the going rate for buildings of its size. Kahn's application of factory-building reinforced-concrete techniques to a library was not only economical but functional.⁴²

Many observers have been favorably impressed by Illinois's ability to extend its bookstack almost indefinitely. By situating the building (opened in 1926) at one side of the principal mall of the campus with the stacks to the rear, five stages of stacks have been added, with a sixth in the planning stage in 1976. As early as 1932, Munthe felt that the limit of lateral expansion had been reached, and that there should be a stack tower.⁴³ The master plan of the time, however, decreed uniform cornice lines. While there is room for more stack additions, unfortunately the rest of the building is frozen. One of the technical services departments now occupies one end of the great reading room, screened off only by high shelving, and the card catalog has not only filled the beautifully panelled delivery room to capacity, but has overflowed into the reading room lobby and spilled down a long lateral corridor. Stack seating can be added, but any real remodeling to provide more reader or staff space is impossible because of load-

bearing walls. This is a sample of the kinds of problems which nearly all libraries built before 1950, and some built thereafter, must cope with.

Yale's Sterling Library (1931) and Northwestern's Deering Library (1932), both designed by James Gamble Rogers, reflect their architect's and owners' predilection for Gothic style. While Northwestern displays the conventional second-floor public service center with an uncommonly well-related technical services area, Yale was given a largely one-level layout, with a stack tower. The Gothic sheaths of both seem somewhat halfhearted, pointing up Burchard's and Bush-Brown's observation about the gradual dilution of the eclectic.

Columbia's South Hall (1934), now Butler Library, is another unexpandable building, the lesson of Low apparently having been disregarded. Essentially a huge, rectangular doughnut around a central stack, it has many excellent features, but is as inflexible as most of the great libraries of the period.

Somehow, some of the buildings which were forced into conventional styles came off well. Many contain beautiful stonework and woodwork, even handsome stained glass. Perhaps it is the smaller and usually simpler college libraries which come off best. One is Dartmouth's Baker Library (1928), clad in traditional Georgian garb, but beautifully proportioned and somehow right in its setting. But there were not very many of these; even on smaller campuses, there was an unfortunate tendency to make a great impression on the outside, and ignore considerations of planning. Williams College's Stetson Library (1922) was a pleasant building, but less than ideal in arrangement.

Especially during the 1920s and 1930s, technology was making many new things possible in building. Steel replaced cast iron in stacks; supports became smaller, shelving lighter. Standardization of shelf length at three feet was established around 1931, although many libraries had been using that size for decades.⁴⁴ Ventilation and lighting had improved enormously; air conditioning became available, albeit at enormous cost. Reinforced concrete meant large savings in money and gains in strength. Conveyors helped with the movement of materials, as did elevators and booklifts for people and materials. The rapid development of automotive technology brought the bookmobile into existence, making it possible to move small libraries from place to place rapidly.

Besides bookmobile service, many other new services appeared during these decades which had implications for library planning. A few other such services in public libraries include: separate magazine

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and newspaper collections, archives, local history and genealogy collections, and more elaborate services for elementary and high school students, the latter sometimes a separate area. A daring few were even beginning to experiment with audiovisual services. Academic libraries experienced the rise of reserve reading rooms, rare book and other special collections, and separate reading rooms and collections for undergraduates.

However, the Great Depression of the 1930s had a blighting effect on library building of all types. World War II followed so closely that the reviving industrial potential was shunted into the manufacture of war materiel. Library building was not to become a major factor again until the late 1940s.

In the meantime, a few leaders of both the architectural and library professions had become increasingly dissatisfied with the awkwardness and expense of the library buildings of the previous several decades. Their complaints increasingly filled the literature of the 1930s, and there were some positive, if halting, steps in the late 1930s and early 1940s. Librarians and architects alike were determined that the future should offer better buildings. Depression and war did not stop them.

One of the most vivid and forceful of these leaders was Angus Snead Macdonald. Trained as an architect at Columbia just after the turn of the century, he never practiced his profession except as a consultant. Instead, for many years he managed a family business, Snead and Company, which for several decades was one of the principal American manufacturers of cast-iron and, later, steel bookstacks.⁴⁵ Charles Baumann's book is an excellent study of the man, his work, and his long-lasting influence on the library profession.⁴⁶

In a sense, Macdonald was working against himself and his company, for he advocated a freer, more open approach to planning, with less dependence on fixed, load-bearing stacks and walls, so that alterations could be carried out easily as changing needs indicated. His 1933 paper in *Library Journal* was a visionary's dream of the public library of the future.⁴⁷ While many of his ideas were (and are) impractical and have been passed by, others have been adopted. For example, the idea of informal reading areas surrounded by books of particular subject categories, shelved in movable, freestanding stacks, has become a major feature of most modern libraries. Conveyors, lower ceiling heights, lounge areas, and carpets have all become virtually standard. In 1934, Macdonald wrote:

No library has yet been built wherein full advantage has been taken of the logical scientific and engineering facilities that are known to be available. For this we have principally to blame the forces of tradition and habit which can be conquered or diverted but slowly. . . . While we are actually living in an electrical era our library architecture has as yet been only partly accommodated to electrical operation. Fundamental designs and story heights in particular still follow the precedents of the Classical, Gothic, and Renaissance periods.⁴⁸

He continued to lecture and write in this vein and, in 1939, introduced a semi-freestanding ("convertible") stack at Colorado State College of Education, in which only one-third of the columns were load-bearing.⁴⁹ In the 1934 article cited above, Macdonald outlined a scheme in which evenly spaced hollow columns would serve to bear the load and also to carry heating, ventilating and electrical systems.⁵⁰ While only three libraries using this concept were built, it marked the beginning of a new era in library building.⁵¹

The period 1939-50, one-half of which was given over largely to a huge war effort, represents another short, but vitally important, transition. During this period, Macdonald attracted the attention of a young library administrator named Ralph Ellsworth, then of the University of Colorado, whose leadership in the movement toward rational, sensible, flexible libraries spanned several decades. During the war years, Ellsworth planned a new building for the State University of Iowa. The project began in 1943, was built in 1945-47, and has been added to and rearranged since. Ellsworth, already influenced by Macdonald, wanted and got a plan totally different from anything previously built. He wanted flexibility to meet the changing and unpredictable needs in higher education. This first truly "modular" building had a stunning impact on the library community.⁵²

In the meantime, Macdonald and an architect named J. Russell Bailey were constructing a full-scale model (1945) of a "modular" layout.⁵³ The Cooperative Committee on Library Building Plans, a committee of college and university presidents concerned with planning principles, held one of its meetings in Orange, Virginia, to study the model.⁵⁴ The model impressed many of these presidents, their library directors, and others who saw it. A report of the committee's views on the nature of good planning appeared as a book, *Planning the University Library Building*, in 1949.⁵⁵ This publication, along with many journal articles, had a considerable impact in the period im-

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mediately after the war. Baumann's "Library Building Survey, 1930-1960" clearly shows a dramatic shift from the older approach to the modular.⁵⁶

No comment on this decade would be adequate without mention of Princeton's Firestone Library (1948), outwardly a fairly conventional neo-Gothic (but not overhwhelmingly so) structure, a facade which conceals a completely functional layout, using a pattern of fairly small reading areas scattered, in part, among stacks. The building, many years in the planning, was immediately hailed as a step in the right direction.

With these few early examples, and with the continuing writings of the Cooperative Committee on Library Building Plans and its successors, the stage was set for the explosion of new buildings of the past twenty-five years.

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Late in 1945, Macdonald published a paper which he ended with this prophecy: "I think we are entering into the greatest architectural era the world has ever known, and I believe that it will be known to history as the American Era. I also believe that libraries, instead of trailing the procession of progress, will take the lead, consistent with their position as sources of the knowledge whereby culture and civilization advance."⁵⁷ It is abundantly clear that libraries have indeed been leaders in the new American architecture which emerged about 1950. Nearly all of the major architectural journals began to feature new libraries, large and small. Countless architects who had scarcely been in a library suddenly found themselves caught up in a new specialty. Nearly all of the nation's greatest architectural leaders became interested, and their projects grace communities throughout the nation. Scores of manufacturers began to supply furniture and equipment designed specifically for libraries.

Why did this sudden burst of activity occur? A new prosperity certainly helped. As the nation's economy improved, tax bases at all levels produced huge new sums for public works. Similarly, citizens felt able to afford to tax themselves additionally to replace ancient Carnegie libraries or other outdated facilities, a project impossible to accomplish during the depression and war. Entire new communities had sprung up, and small suburbs began to grow, requiring wholly new facilities. In academe, Fremont Rider's startling forecasts concerning collection growth proved to be, if anything, conservative.⁵⁸

Returning GIs and other young people had the money and will to go to college, creating a demand for seats as well as stack space. On many campuses, satisfactory additions were impossible because of site restrictions; new buildings were the only answer.

More than enough has been written about the burst of interest in higher education and its methods in the 1950s. Let it be said simply that the resulting boom in students, both from the GI Bill of Rights, Sputnik, and the maturing of the postwar babies, combined to cause a constantly rising curve of demand. Larger faculties, more graduate programs, and the need for more materials added to the problem. In the early 1960s a generous federal government, led by a new administration dedicated to more education in all its forms, poured millions into the library hopper. From 1967 to 1971, almost one billion dollars went into academic libraries alone.⁵⁹ Even when this all-too-brief period came to an abrupt halt with the election of an administration with other priorities, there was so much momentum that slowdown in construction did not occur for some time. It took the recession of 1973 to make the federal government eliminate construction funds altogether. At the same time, citizens looked hard at their taxes, and began to balk at maintaining them, much less adding special levies. The number of new academic buildings fell from 48 in 1970 to 18 in 1975, and of new public libraries from 191 to 125.⁶⁰

Public libraries felt the same increase in interest, especially in demand for nonfiction materials of all kinds, audiovisual and children's programs and materials, branch and bookmobile service, and public meeting facilities. Circulation climbed steadily for a few years, then began to decline in the 1960s, particularly of books, presumably in response to the availability of television. The recession of the mid-1970s, however, seems to have reversed that trend, at least temporarily.

The increased needs of the various communities meant more librarians and more and better workspace from which to serve users. As circulation and serial records proliferated, automated techniques of control were introduced. These have specific implications for library planning. Many administrators are wondering how to get thick computer cable through too-thin reinforced concrete floors; one can go only so far with dropped ceilings or raised floors. Wise planners have built in duct space and even rooms for as yet unordered hardware. The audiovisual production areas of learning resource centers in community colleges have an even greater impact on space and costs.

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Tremendous increases in numbers of serials have made necessary enormous amounts of open and closed shelving. Greater use is being made of various forms of compact storage, warehousing, or cooperative deposit centers. These range from simple open space to sophisticated mechanical stacks, such as the Randtriever.

Microforms, few in 1950, are now almost universal. Space for microform readers is usually short, and they often wind up in awkward corners of basements. The most advanced new buildings offer comfortable reader areas in at least near-prime space, with controlled environment storage for the materials. Similarly, "special collections" (rare books, manuscripts, archives, maps, etc.) have grown vastly, so that even smaller public or college libraries are likely to include some rooms or areas dedicated to these uses, all of them with special needs for mechanical and other equipment.

Library buildings, then, have grown from simple affairs of a reading room or two, workroom, and bookstack, to facilities requiring many special rooms or areas, all of which need to be in some sort of sensible relation to each other, for the convenience of users and for efficient service to them. Sophisticated new systems of heating, ventilation, and air conditioning (also, occasionally, stronger and thinner reinforced concrete, etc.), new lighting techniques, improved floor coverings, including carpeting no more expensive to install and maintain than tile, lighter-weight and more graceful furniture, better acoustical materials—all of these need to be analyzed and the best available and cost-feasible systems selected.

As the planning process has become more complex, two significant developments have taken place; both have helped to keep the situation under control. First, the role of consultants has become prominent. From the earliest years of the century under discussion there have been a few; William F. Poole, Josephus Larned, Justin Winsor, Arthur Bostwick, and Joseph Wheeler all helped to build better libraries. However, the practice did not become commonplace until after World War II, and is now required in many situations where state or federal funds are involved. The successful efforts of Wheeler, Ralph Ellsworth, Keyes Metcalf, Ralph Ulveling, Charles Mohrhardt, Ellsworth Mason, Donald Bean and his associates, and scores of others have made it clear that the practice is generally desirable.

The other practice is again not a new one, but now generally employed: the written statement of program. While some librarians and architects still maintain that they prefer to develop a program as they go along and wave it triumphantly to the assembled throng at the

dedication, most begin with a statement of what the library is and does, what it hopes to be and do, what rooms and areas it will need to do its work, and how those spaces should be related. Some are so simple they are superfluous; others are unbelievably detailed, even including the placement of wastebaskets and ashtrays. Many librarians who lack building experience find this an impossible task to accomplish; a competent consultant, working with the librarian, can manage it fairly easily.

A number of books and a huge mass of journal articles on all aspects of library building processes began to appear in the library press. Some of these, such as Keyes Metcalf's *Planning Academic and Research Library Buildings*,⁶¹ and the proceedings of the Library Building Institutes which have been features of many ALA annual conferences, are landmarks in themselves. Critiques of plans and finished buildings were included in most of the ALA publications. A number of individuals (Ellsworth Mason, for example) published perceptive and sometimes barbed comments on buildings which attracted their attention.

Using new concepts, materials, technology, and expertise, librarians and architects together can point with pride to literally hundreds of eminently successful new buildings. Behind many of these successes lie tales of hours spent in bitter disagreement and tension between client and architect—a stormy process which, somehow, has come out right. But there have also been failures, condemned by librarians and users alike. While blame for some of these disasters can be laid at the feet of overly zealous or recklessly experimental architects, as much or more blame can be assigned to librarians, trustees or academic administrators who let these architects get away with it, or who heeded parties representing special interests or misplaced pride, or otherwise failed to use common sense and wisdom. There are few human relationships more complex than that of client and architect, and like all human relationships, they are subject to varied and often unique pressures.

Outside pressures have caused much mischief. What sort of judgment permits a state university to use, virtually unchanged, a set of plans in 1959 which were developed in 1933 and had been lying in a drawer because of a lack of funds? How can a major university plan a library building, using a faculty committee with virtually no librarian participation? How can a first-rate small college build a library with a grand staircase leading to an outsized temple to the world's great writers (upon the insistence of a donor), thereby effectively freezing

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two floors? How can public library boards and academic administrators permit buildings with no opening windows in erratic climates (which would appear to be most of the nation)? How can cheap carpeting be bought for a stairway leading to the stack levels of a major university library? How can a public library be built in split-level fashion, à la Carnegie, with no elevator? How can a small university permit the erection of an architecturally beautiful small temple which can never be enlarged without the utter destruction of the building's acknowledged architectural integrity? And what about the assumption that a county in the San Francisco Bay area never has hot weather, and therefore its public libraries don't need air conditioning? Human frailty plays a larger role than almost any other factor in achieving success or failure.

At this point, mention of specific landmark buildings becomes difficult, for there are so many imaginative, attractive, functional libraries. Others are merely adequate; still others are variously flawed. The laws of libel, professional discretion, and, most of all, a recognition of differences in taste and interpretation of what is functional dictate caution. On the other hand, some of those that are really controversial, some of which have drawn considerable published comment, should be mentioned.

Space prevents mention of more than a handful of generally acclaimed libraries. Among academic libraries, some of the pacesetters are: Lamont Undergraduate Library, Harvard (1949); McKeldrin Library, University of Maryland, unhappily clad in neo-Georgian (1957); University of Michigan Undergraduate Library (1958); Olin Library, Washington University (1962); Earlham College Library (1963); Wessell Library, Tufts University (1956); Harvard's Countway Library of Medicine (1965); University of California at Santa Cruz library (1966); Arizona State University library (1966); Schlesinger Library, Radcliffe College (1967); Hofstra University library (1967); University of Illinois undergraduate library, built underground to avoid shading an historic cornfield (1969); Indiana University's huge complex (1970), combining yet separating graduate and undergraduate libraries and a sizable cafeteria; University of Washington undergraduate libraries (1972); Oberlin College library (1974); and Sawyer Library, Williams College (1975).

There are hundreds of public libraries, large and small, but a few generally admired (with a couple of personal favorites thrown in) are: Cincinnati (1954), with enlargement planned for 1976; Dallas (1955), also hoping for enlargement or replacement; Denver (1956); Char-

lotte (1957); Seattle (1960); Jacksonville (1965); Tulsa (1965); Wichita (1967); and substantial additions and remodeling in Detroit (1963), Memphis (new in 1966, enlarged in 1972) and Houston (1975). Many smaller communities boast unusually attractive and workable libraries, among them: Skokie, Illinois (1958, tripled in 1972); Shawano, Wisconsin (about 1962); Pomona, California (1966); Elgin, Illinois (1968); Columbus, Indiana (1969); Northbrook, Illinois (1970, enlarged in 1975); and Edina, Minnesota (1974).

If some buildings were largely approved, others generated mixed reactions, even hostility. In recent years, probably the most controversial building was Skidmore Owings and Merrill's (SOM) Northwestern University library (1970), built on reclaimed land behind (and ingeniously attached to) Deering Library. Above one vast principal floor, three large round-appearing towers rise. These contain stacks radiating from central lounge areas, with seminar/office/carrel space arranged around the periphery; a special core collection; and various other functions. It is a striking building in terms of architecture; a first viewing of it in dense fog is an interesting experience. However, opinions differ about its functional aspects in particular.

Less controversial, but much discussed, is Chicago's Regenstein Library. Another SOM building, also from 1970, it has a totally different design pattern. The multileveled but not multitiered stacks are a separate entity, physically and mechanically apart from the reading and study areas. That is, there are no carrels (only a few chairs and tables) in the stacks. Instead, the stack ranges are unusually long, and the various levels are kept at controlled humidity levels and at lower temperatures than are the reading areas. The comfortable, carpeted study areas are amply furnished, and great banks of book lockers are provided. While the amount of staffing desirable for such an arrangement has had to be deferred because of funding difficulties, the plan seems to be working reasonably well, if not at optimum level. The concept appears to be something of a throwback, but the improvement in stack climate augurs well for the continued health of a major research collection.

The University of California's San Diego library (1970), by William Pereira, is an architectural *tour de force* which has attracted much attention. Again, a huge main floor supports a single tower which rises upward and outward and then tapers back in again, much like a stepped pyramid set squarely upon an inverted stepped pyramid. It is an engineering and visual triumph, and appears to be more functional than might be imagined from a description or casual glance.

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Architects greatly enjoy experimenting with odd shapes. We have seen circular libraries, such as the Inkster (Michigan) Public Library (1960) and the Chabot College library (1966); triangles such as the Wright State University library (1974); elongated ovals, such as the Niagara Falls (New York) Public Library (1975); and many others, some of them virtually indescribable. In recent years, many of the awards for library architecture by the American Institute of Architects have gone to libraries of odd, if often intriguing, shapes. The functional results of many of these are questionable, some of them winding up just plain "gimmicky." Some even seem to suffer from another strain of the old malady of function following form—in these cases, forms are chosen for the sake of being different and spectacular.

Unquestionably, this has been an exciting quarter-century of library architecture. Can anything better follow? It is unlikely, at least for some time.

With the ubiquitous problem of differences of opinion regarding space utilization and architectural styles, and the enormous costs of this economic era with a concomitant lowering of the quality of much labor performed and many materials produced, it has become increasingly difficult to build long-lasting buildings for anything approaching a reasonable amount of money. Inflation has wrecked many programs, resulting in scaled-down and inadequate buildings erected for more money than much larger buildings cost only a decade ago. We have an enormous technological capability; we have dedicated and imaginative librarians and architects; and we have an accumulation of more than one hundred years of knowledge of how to plan and build (and how *not* to plan and build) libraries. However, we are caught in a period of unsettled economy, with the future looking murky, at best, at least for the short term. Building has already been sharply limited, and it will continue at a reduced pace for some time.

We are also living in an era in which many workers, for a variety of reasons, do not take the kind of pride in their work that their fathers and grandfathers did. The result may be that the ancient horrors will stand, while the newer, better-planned, better-looking, but shabbily built buildings will deteriorate more rapidly. Only the most careful planning and thorough followup can prevent what is already visible in many situations from becoming as much of an epidemic as the monumentalism of the early 1900s.

In those buildings which are built, certainly more attention will be paid to energy considerations. Solar energy will probably be a practical solution to heating needs within ten to fifteen years. One library under construction in early 1976—Troy (Ohio) Public Library—includes a provision for the addition of the necessary equipment when funds can be obtained.

Much more attention will be paid to the needs of automation. The proliferation of consortia, networks and other cooperative arrangements may well have an impact on growth considerations. In the light of the economy, soaring building costs, and a rising tide of public demand for accountability for public money, flexibility in plan has become more important than ever. Perhaps there will be another and better “golden age” in the twenty-first century.

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