



# Spatial Problems in University Libraries

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THIS ARTICLE will emphasize the financial side of the space problem. The reasons for doing so are that it has been neglected in the literature so far, and that it is the key to intelligent attack on a number of other aspects of the problem.

What is the space situation? Why is it so important? What should be done about it? Let us deal first with the question of what we use space for, then consider what our needs for space are going to be in the years immediately ahead, and finally discuss what can be done about it. We are inclined to think that space in libraries is used primarily for storing books. This is not the case, except in a very few endowed institutions that have unusually large book collections and a comparatively small number of students. Most university libraries use considerably more space for readers than for books. Also, in addition to space for books and readers, there must be space for the staff, the catalog, entrance lobbies, corridors, stairways, exhibitions, and many other uses. But in too many libraries space is consumed because the building is a monument as well as a library (or even a monument and only incidentally a library), or because of poor planning. In some libraries as much as half the cubic footage may be wasted in this way.

Building-cost statistics are generally given on the basis of so much per cubic foot, or so much per square foot of floor space. It would be better, if we could agree on a reasonable definition of the terms, to use as a base the cost per volume housed satisfactorily and per reader cared for comfortably. There are too many reading rooms with chairs for six readers at tables that are only six or seven feet long and three feet and even less across, and with narrow aisles between the tables. With accommodations of this sort, students will not fill all the chairs, even if they have no other place to go to study. They will do their work elsewhere, or, more likely, they will not study at all.

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A second group of problems involves what we call the modular system of construction. Briefly, this means that the interior of the building is supported by columns instead of bearing walls, and is made up of a number of modules identical in dimensions. Arguments for this system are that the total cost per square foot or cubic foot is reduced because of simplified and thereby cheaper construction, and, more important, that complete flexibility is obtained, because all modules are alike and can be used for any purpose, now or later. Objections are more complicated, but are based on three facts:

1. That no module is perfect in size for all types of use.
2. That the system tends to produce a not quite first-class building because no part of it, being all a compromise, is perfect for any type of use.
3. That the architect and the librarian, in planning a modular building, tend to fall back on the fact that the building is flexible, and consequently do not plan ahead in sufficient detail. Actually the system requires more rather than less thorough planning for the most satisfactory results.

The disadvantages of the modular system have been stressed because, in this writer's opinion, its advantages have been overemphasized. Nevertheless the modular building is, rightly, here to stay. It is suggested, however, that advantage be taken of its good points, economy of construction and flexibility, that through careful planning the space may be used as well as possible, and finally that consideration be given to the use of other plans in the parts of the building where the modular system has obvious and unavoidable disadvantages.

While stair wells, corridors, and lobbies should be held down to a reasonable size, the importance of a good communications system should not be forgotten. Savings had best come by avoiding monumental stair wells and lobbies, not by reducing them to a size that will cause congestion. Corridor and lobby space can be used for multiple purposes; for example, as an exhibition area or even for the shelving of heavily used books. A wide corridor with exhibition cases on one side and books for assigned reading on the other may give a spacious effect for the library as a whole and yet at the same time save space.

Space for monumental purposes poses particular difficulties. If a monumentally inclined donor can be made to realize that his money might be used to such better advantage that it will add years to the life of the library and thus to the period during which his name will be

attached to the building, he may be prevailed upon to moderate his requests. The monumental portion of a building takes up space; it may also result in unsatisfactory internal arrangements, which are equally serious.

Workroom space is often the first place where a library building is outgrown. This may come from modesty on the part of the librarian, but sometimes simply from poor planning, which makes it difficult to use effectively all the space assigned.

Space for catalogs is often a serious problem. If an addition is made to the bookstack later on, a much larger catalog than originally required may be needed, and there may be no place to put it. The users of the catalog when the collection is small may take up much more space than the catalog itself, but as it becomes larger, the problem is to find room for the number of catalog drawers required, and the space for readers may be reduced proportionately. Consultation tables and their location are of great importance. Flexibility is increased if catalog cases are made in small units.

While bookstacks generally have less waste space than any other part of a library, they are not always well planned functionally. The arrangement should be as compact as possible to save steps and construction costs, and at the same time designed so as to make it difficult for the reader to lose his way. This point has not been given sufficient attention. Stack manufacturers and librarians have urged that no stack range should be more than ten sections, or thirty feet long, but a longer range may result in a stack that is less confusing and easier to use. If the stack can be so constructed that the main center aisle is immediately adjacent to the stairs and elevators, with only one range on each side of it, it is very much easier for a reader, or a staff member for that matter, to find his way about.

The largest part of almost every library today is used for readers. It is here that the greatest amount of space is lost, and that planning has been confined too largely to appearance and too little to making satisfactory and economical accommodations. In the past, height was required in our great reading rooms to obtain outside light and adequate ventilation, but the higher the room, the greater the difficulty of providing good artificial light, required about half the time most libraries are open. It is now possible, with modern lighting and air conditioning, to plan a reading room with a nine-foot ceiling and with less than twenty-five square feet per reader; experience has shown that reading areas up to 25 x 54 feet can have ceiling heights as low as 7 feet 8 inches without seeming oppressive.

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Large reading areas should be kept to the lowest possible limit. What might be called semiprivate accommodations as close to the books as possible are to be preferred. This can be done by alcoves, by what are known in the Princeton Library as "oases," or by cubicles or carrels, known at Harvard as "stalls." To save space, stalls should always be placed adjacent to an aisle that is necessary for other purposes. Such a stall in a bookstack requires less than one-third as many cubic feet of space as is required to seat a reader in a reading room two stack-stories high, and, for most readers, is more satisfactory. Some libraries have arranged to assign a stall to each reader, reserving it for his use only. If a reader is allowed to use any vacant stall, total space requirements are greatly reduced.

What are the needs for space going to be in the years directly ahead? Assuming careful planning and the elimination of monumental buildings, three important questions remain: Will the library staff grow and require more workroom space? Will the student body grow, or the use of the library made by students increase because of changes in educational policy? Will the collection grow?

Library staffs have increased tremendously in the past generation, but there are indications that growth will level off in the future. With original adequate provision for the staff in a new library today, and a building planned with reasonable flexibility, there should be less difficulty here than in the past.

The provision of space for readers is more complicated and serious. For one thing, this space represents a larger percentage of the total library area; for another, library use depends on many factors that are difficult to predict.

When a new library is planned, provision should be made for any additional use that will come from better physical conditions and better service. It is amazing how use will increase with improvement along these lines. The fact that this point has not been thoroughly considered is one of the chief reasons for new buildings becoming inadequate in size in what appears to be an unreasonably short time.

In institutions that have already given up the textbook method of instruction, it seems doubtful that there will be a change in educational policy in the years ahead which will increase to any considerable extent the number of hours spent in the library by students, but in others there may well be a shift to assigned and collateral reading, and the use of their libraries will be bound to increase greatly. In the past, student enrollment has almost always increased more rapidly than was anticipated except in a few of the endowed univer-

sities which put strict upper limits on the number of students admitted. Census reports indicate that there will be a considerable increase in the total number of young men and women of college age in the years immediately ahead. It is important to plan so that a greater number of students can be provided for later, either within the building as originally constructed, or in an addition to it, or elsewhere.

Now for the controversial question of the increased size of the book collections in our libraries. Fremont Rider's stimulating book *The Scholar and the Future of the Research Library* showed that until 1938 the average college or university library had been doubling at the rate of once in sixteen years. Later statistics indicate that this rate has dropped. The increase, instead of being 4 per cent per annum compounded, is now well below 3 per cent in those of our large libraries which can be considered to have reached maturity, and it is likely to be gradually reduced even farther as the years go by.

There are many reasons for this reduction in the rate of growth of our great libraries. The most obvious one is that a 4 per cent increase cannot continue indefinitely in a world that is increasing only one per cent a year in population. Another factor will be the disintegration of paper on which printed matter is published. If 100,000 volumes a year are added but 50,000 old ones disintegrate, the net growth is reduced. Paper disintegration is a field of research that has been sadly neglected and must be studied more thoroughly in the years ahead. However, it may take another generation or two for disintegration to reduce growth drastically, and we are thinking of the immediate future, not the twenty-first century. We cannot plan our libraries now with only the latter in mind.

But there are other factors that will tend to slow up the rate of growth of our collections. One is finances. The expenditures of libraries cannot, over a long period, increase at a more rapid rate than the other expenditures of the institution to which they are attached without upsetting our whole educational appletart. Total library expenditures do not, of course, increase at exactly the same rate as the size of the collections. Nevertheless, there is an inescapable relationship between the two because of the increased space required by growing collections, and the increasing unit cost of cataloging and public service as size increases.

Another possible cause for a decreased percentage rate of growth in research libraries is the probable increasing utilization of micro-reproductions and other mechanical devices. These may result in a

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drastic change in the library picture as far as spatial needs are concerned.

In those large libraries which have reached maturity the geometric rate of growth in the past has been, is being, and will be reduced. Even if the former rate of growth should continue, a large part of the space needed to accommodate the increase will not be in central buildings but in less expensive, outside locations.

When a library has reached maturity (several of the divisions of the Harvard Library have reached that stage, and a half dozen other large research libraries in the country are now in, or are rapidly approaching, that condition), if its book collections increase very much more than 2½ per cent a year, the library is growing more rapidly than it should. When a library is large enough to occupy one-tenth of a university's building plant and to use 7½ per cent or more of the institution's resources, it cannot continue to increase the space it occupies or its current expenditures more rapidly than the plant and the expenditures of the rest of the institution are increased without in a comparatively short time throwing the whole educational program out of balance.

It will take time to reverse the present trend in university libraries. An institution planning a new building today should provide space for books sufficient to care for an increase in the book collections for twenty-five years at the present rate, and seating capacity for the anticipated increase in the student body during a similar period. But it is not too early to be thinking about 1980.

There are very few architects and very few librarians who are well prepared for the task of planning a library. Unless the architect's and the librarian's experience in library planning has been extensive and successful, they should bring to their aid an experienced library architect or an experienced librarian as a consultant; in some cases both would be desirable. It should be realized that planning a successful library building is a complicated problem that cannot be accomplished in a short time. It requires a tremendous amount of consultation between the librarian and the architect, the faculty, the students, and others concerned.

However well or poorly a building is planned, the time will come when it can no longer be expanded, either because of plot limitations or lack of funds, and a new central building is deemed impossible or undesirable. By that time it is hoped that we may have reached the period when it is accepted that a library (excepting large research

libraries) can limit its growth by discarding as rapidly, or at least nearly as rapidly, as it adds.

In addition there are four other possible courses of action. The first is better use of space already available through improved reading-room arrangements or the use of compact shelving now available through a number of bookstack manufacturers.

The second is decentralization within the university. Most librarians will say that there is already far too much decentralization and that it is almost criminal to advocate further division. On the other hand, it still may be better than continuing to live in a building so crowded as to make good service impossible. It may also be better than spending millions for a new building that will prevent use of the income from the same millions for other library purposes. Finally, there may be collections that will be just as useful outside the central library as in it. For instance, in a large and physically decentralized university, two science collections might well be outside the central building, one for the biological and one for the physical sciences. Libraries of professional schools, such as medicine, law, divinity, education, possibly business and some others, can be detached. At Harvard it has been found that a separate library for undergraduates can be an advantage rather than a disadvantage as long as the central research collection is available to the students when needed.

A third method for providing for growth without a new central building is to arrange for cheap storage for less-used books. This may be under warehouse conditions near at hand. In a metropolitan area, it may be in a cooperative storage building, such as the New England Deposit Library in the Boston area. It may be a regional library such as the Midwest Inter-Library Center or the proposed Northeastern Regional Library. The regional solution should have the advantage of permitting the elimination of little-used duplicates. Whether or not a regional library should have a strong acquisition program for current material has not yet been definitely determined, but the Midwest Inter-Library Center is struggling with the problem on a fairly large scale with some hope of success.

Lastly, there is the proposal advocated by the former Librarian of Congress, Luther H. Evans, by which all but the most-used books in a subject for which the demand is slight are transferred to the library that takes special responsibility in that field. The scheme has much merit but before libraries can undertake wholesale transfers from one institution to another, the universities involved, at the highest administrative levels, must put their stamp of approval on the proposal. Uni-

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versities must divide fields of instruction between themselves if their libraries are to divide fields of book collecting. At present, it will be easier to transfer the types of material Evans had in mind to a regional library than to what we are still too inclined to consider as rival institutions.

This leads to mention of two important cooperative acquisition programs already in operation: the lusty infant at the Midwest Inter-Library Center, and the Farmington Plan, a little older, but certainly still in its early adolescence. Cooperative acquisition, with a division of fields and with the understanding that books in one library can be readily made available to others through interlibrary loan or micro-reproduction, certainly offers one method of cutting down on demands for space.

In conclusion, it is important that librarians be ever on the lookout for new developments such as microreproductions, facsimile by wire, compact shelving, and architectural innovations that may help to solve their space problems. We never can tell when science will come to our aid.

Librarians must also remember that demands for space, unless better controlled than in the past, will result in a larger and larger percentage of the funds available to libraries being used for new construction and building upkeep. Space demands should be held down as far as possible without interfering with the primary purpose of research libraries, which is the furthering of research with the written word. If an existing library is reasonably satisfactory except for book storage, careful consideration should always be given to the question whether the new construction will be more useful to the library than use of the same funds for other library purposes.