Archival Buildings—Programing and Planning

By VICTOR GONDOS, JR.*

National Archives

PROGRAMING is the term traditionally used to indicate the process of determining the requirements, classifying the requirements, and presenting the requirements for a proposed building. A successful, efficient, modern building does not grow like Topsy: it is always the result of hard, sustained thinking by those associated in its conception, promotion, and execution. So it is with a new building for archives. This thinking, or the processes of gathering the necessary data, organizing the data, developing the interrelationships, and compiling the list of requirements within the means available—that is, the program—is the responsibility of the promoters or owners of the project, preferably assisted by a consulting archivist.

The second main phase of thinking, the planning process, is the responsibility of the technical advisers retained for the project, that is, the architects and the engineers, preferably in consultation with the archivist. The resultant plans are intended to satisfy the requirements of the program.

PROGRAMING

General and Site Considerations

While the standard services provided by an able architect, with a competent staff, include the preliminary sketches needed to develop the possibilities inherent in alternative requirements and ideas, such services normally do not include the basic research needed for compiling data for the program. The board or building committee entrusted with the responsibility for the project should retain, therefore, a competent professional archivist to assist in

* The author is a Fellow of the Society, chairman of its Committee on Buildings and Equipment, a corporate member of the American Institute of Architects, Chief of the Army and Air Corps Branch, National Archives, and editor of *Military Affairs*. He read part of this paper on Oct. 4, 1963, at a session on archival buildings and equipment of the 27th annual meeting of the Society of American Archivists, at Raleigh, N.C. The late Mary Givens Bryan, Archivist of Georgia, organized that session and was its chairman. Plans for this issue of the *American Archivist*, which is derived largely from Mrs. Bryan's session, were developed with her cooperation some months before her untimely death on July 28, 1964.

developing the requirements for the proposed archival plant and organization.

Those responsible for the project should make every effort to avoid presenting the architect with an undigested and fragmentary program. The minimum requirement is a checklist of all desired rooms and areas and their sizes; but a good program should also state the interrelationships and functions of the various areas and, if possible, the furnishings and equipment to be included.

The program data are then used by the architect in preparing preliminary sketch plans. These sketch plans must conform, also, to the available site.

When a new archival structure is to be built, one of the first critical decisions to be made is the choice of a site. The plan of the building is influenced greatly by the nature of the site. Conversely, the choice of a site must be governed by the kind and size of building wanted.

No consideration is more important in the selection of a site than that of room for expansion. This consideration, for one reason or another, was not given sufficient weight in the case of either the National Archives of the United States or the Maryland Hall of Records. The sites of both these buildings provide no room for lateral expansion of the stacks. It was thought that some measure of vertical expansion might take care of future stack needs, but the set form of the architectural style in both instances makes this impossible. Then, too, zoning authorities are likely to regulate what are known as "cornice lines," limiting artificially the possibilities of vertical rise, even if ample structural provision could be made for such additions.

The late Georg Winter proposed five principles that should govern the choice of an archival site. The archives should be:

1. Near the agencies with which it is bound by daily business relations and from which it receives its records.
2. Near the cultural and research institutions that are most dependent on archives and with which it has close cooperative relations.
3. Near the center of public life, but also:
4. Away from fire-threatening establishments (gas tanks, chemical works, and the like) and from districts subject to dampness, to flood, or to harmful gas and dust in the air.
5. Away from closely built and densely populated areas—places especially dangerous in time of war or public disorder.

This last condition may be in contradiction to the preceding ones and may necessitate difficult choices. Winter, for example, did not

agree with Wilhelm Winckler that the administrative building alone should be in the center of town near the official and cultural establishments and the archival storage building (or buildings) should be far outside the city limits so as to minimize the danger from aerial attack. He believed that the records and their administration must be together and that buildings should be built to withstand the dangers of war as much as possible.[1] There is no fully satisfactory solution to this problem of the centralization or decentralization of archival storage.

In the United States the problem is receiving at least a partial answer by classifying records according to degrees of importance and earmarking the most valuable ones for transfer to field record centers or underground vaults. Record centers are primarily waystations for records removed from current files in agency offices to noncurrent storage. The overwhelming majority of records in the center ultimately will be disposed of by destruction or by wastepaper sale, but a small trickle of permanently valuable records will find their way to the archives.

Archives tend to remain centrally located while record centers are dispersed on outskirts of metropolitan areas or in the countryside. We find, for example, that both Tennessee and South Carolina built their fine archives buildings at the very heart of their capitals; Michigan, on the other hand, built its record center on the outskirts of Lansing.

In some European cities there is a considerable scattering of archival premises due to the conversion of palaces and other older buildings to archival uses as occasion demanded. The Swedish National Archives in Stockholm, for example, occupies a dozen different premises, while the Vienna archives are in five locations.[2] In England, removal from urban centers is urged to achieve freedom from dust, soot, and sulfur dioxide gases, which contaminate the atmosphere in large cities.[3]

It is notable, however, that older archives and also new ones generally have central locations, though cost of land, safety considerations, and incapability of expansion may cause new archives to be situated less centrally. In this writer's view, an archives building—whether Federal, State, university, or local—should be, as far as possible, centrally located with respect to the largest number of its users.

[1] Georg Winter, "Gedanken über einen Archiv-Neubau," in *Archivum*, 6:93 ff. (1956).
[2] Ingvar Andersson, "New Installations of Archives," in *Archivum*, 6:14 (1956).
[3] *Ibid.*, p. 15, 16.

Other points worth noting in the choice of a site are the avoidance of condemnation proceedings insofar as possible and a comparative study of the advantages as well as the relocation costs of such underground utilities as gas and water mains, electrical conduits, and storm sewers. The archivist or his building committee should furnish the architect with a complete and accurate survey of the building site, showing all grades, street lines, pavements, adjoining properties, rights, restrictions, easements, boundaries, and contours of the building site and giving full information on utilities as well as on any soil borings or tests considered necessary. To accumulate and present this information a competent surveyor must be retained.

Developing the Program

In developing the program several factors must be studied to determine the extent and limitations of the problem, namely, the scope of the requirements and the means available for satisfying the requirements: (1) the funds available or in prospect, (2) the legal background, (3) the survey of the relevant records, and (4) the resultant schedule of requirements of space, facilities, and plan relationships.

The problem of funds available, or how to cut the cloth to fit the pocketbook, is not infrequently puzzling. Compromises are almost certainly necessary to progress. Those responsible for the program, if they are not to lose sight of ultimate goals, will first plan for the ideal and then make modifications of requirements to satisfy the existing situation.

It is not unusual for public bodies, such as a legislature, to provide funds for surveying and for architectural and engineering planning without actually appropriating any funds for the proposed project. Behind the scenes there may be a "gentlemen's agreement" on some round figure such as half a million, one million, or three million dollars, but this cannot be taken as assured.

There does exist, however, a relationship between the sums paid for planning and the cost of a completed project.[4] Thus the actual appropriation of a sum of $10,000 for preliminary plans or of $30,000 for completed working drawings and specifications would

[4] Architects usually receive 5 or 6 percent of the cost of a completed public building. For preliminary planning (sketch plans preceding working or construction drawings) they may receive 1 percent of the estimated total cost; and for preliminary plans plus completed working drawings they may receive about 3 percent of the estimated total cost of the building. The remaining 2 percent is due for services performed after a building contract is awarded, such as checking manufacturers' and subcontractors' shop drawings, making detail drawings and field inspections of construction, and accounting for disbursements to the contractors.

tend to support the belief that the project should be programed and planned to cost approximately $1 million. In the case of privately promoted or endowed institutions, however, this problem usually does not arise; for as a rule the funds available are already on hand or a reasonably firm intention and the ability to provide them exist.

The development of the general concept of the project must be based on adequate archival legislation if the proposed building is a State or public archives or on adequate charter or incorporation powers if it is a private institutional archives.[5] The legal requirements have a fundamental bearing on the nature and quantity of materials to be housed, both when the building is ready for occupancy and for a term of years thereafter. Newsome, for example, pointed out that in the 33 States having State archival agencies (at the time of his research) the law favored the centralization of noncurrent State records; and—except for California, Ohio, and Wisconsin—it also favored the centralization of noncurrent local records. Obviously it makes quite a difference in the required building capacity if noncurrent permanently valuable local records are part of the archivist's custodial responsibility.

After the determination is made of the accessioning policy to be followed by the archives—as indicated by mandatory requirements and discretionary authorizations of existing law—a records survey must be made to determine the quantity and the kinds and types of records within the ambit of the legal powers, the ratio of current to noncurrent permanently valuable records, and the annual rate of accumulation in each category. The work of the survey may be divided into the following phases: (1) planning and preparing for the survey, (2) gathering the facts, (3) organizing and analyzing the facts, and (4) compiling recommendations.

In planning the survey it is necessary to determine the scope, the staff available, and the time limit and to prepare a written statement of the survey's objective and a schedule for conducting it. The statement should be supplemented by meetings at which the survey team may be introduced to bureau or office heads and their

[5] See Alfred R. Newsome, "A Proposed Model Act To Create a State Department of Archives and History," in *American Archivist*, 7:130-133 (Apr. 1944). For a comprehensive discussion of archival legislation in the several States of the Union, see also Newsome's "Uniform State Archival Legislation," *ibid.*, 2:1-16 (Jan. 1939). This able paper highlights the need for a clearcut accessioning policy, so important for compiling a project program. Included in topics discussed are noncurrent local records, the status of the archives in State government, and the collection and servicing of private papers.

immediate assistants. Whenever possible, at least one member of the organization being surveyed should participate in the survey.[6]

Facts may be gathered by personally examining records, by interviewing operating personnel, or by questionnaires. Records surveys, as a rule, are conducted by a combination of all these methods. A "walk-through" survey, states Zitmore, is usually unproductive.[7] Eddy, who has conducted numerous surveys, agrees with him, stating that "A survey on which the planning of an archives building is to be based must cover much more than merely the gross bulk of records."[8]

Assuming sufficient staff and time, it is best to obtain and tabulate figures, office by office and bureau by bureau, showing in parallel columns (1) the total volume in cubic feet, (2) the rate of annual accumulation, (3) the cubic feet of records immediately transferable to the archives, and (4) the estimated rate of future accumulations of permanently valuable records. The figures may be footnoted with observations on any special conditions such as size, containers, and physical characteristics.

A word of caution may not be amiss. This type of records survey should not be confused with records administration surveys, where the objective is not only an inventory of records but also the compilation of records disposal and retention schedules. To do both these jobs is quite time consuming and requires refinements of technique not necessary for the purpose in view here.

Too often sufficient staff and time are not available and even the simpler records survey has to be reduced to the barest minimum. Eddy, in fact, believes that if the hard-pressed archivist feels compelled to skip a complete survey he can still arrive at a satisfactory estimate of the volume of records for planning purposes by applying the basic assumption "that the volume of records accumulated by a [State] government will vary directly with the size of the population involved and with the age of the government itself."[9]

This method was indeed applied in planning the new archives structure for the Commonwealth of Pennsylvania, now being built

[6] The *American Archivist* has published several useful articles on surveying of records. For example, see Vernon B. Santen, "The New York State Inventory Project," 20:357-367 (Oct. 1957); Thornton W. Mitchell, "The Illinois Records Management Survey," 20:119-130 (Apr. 1957); and Irving Zitmore, "Planning a Records Management Survey," 18:133-140 (Apr. 1955).

[7] Zitmore, *loc. cit.*, p. 134.

[8] Henry Howard Eddy, "Surveying for Archives Buildings," in *American Archivist*, 24:75 (Jan. 1961). See also Eddy's work on records surveying in *First Report of the Public Records Commission to the General Assembly of the State of Vermont* (Montpelier, 1944).

[9] Eddy, in *American Archivist*, 24:76.

in Harrisburg. It is based on the historical fact that for generations Pennsylvania's population approximated one-tenth of that of the Nation and that, as the National Archives Building in Washington has a rated capacity of one million cubic feet of records, Pennsylvania's building should be capable of holding more than 100,000 cubic feet. Many variables are involved, of course, but the contention is that "these tend to balance each other." An analogical approach of this type should be used with caution, however, perhaps as a check on figures and estimates derived from at least an approximate survey.

In developing the program it is necessary to gather data for other items besides the quantity of records. An architect will need to know not only what is to be housed in the proposed building but also the activities to be carried on there and the resultant space, staff, and equipment estimates.

In this phase of data accumulation it is a normal procedure for the responsible officials or selected members of the building committee—not infrequently accompanied by the consulting archivist and architect—to make extensive tours around the country, learning about others' experience with existing archival structures or facilities and sifting the information onto a list of requirements for their own proposed project. In its final development the program will consist of a chart of space relationships and a booklet describing and explaining the requirements.

Elements of a Good Program

The essential elements of a good program are the following:

1. A statement of the functions, activities, and workflow in the proposed project.
2. A statement of the number, nature, and accommodations required for the staff and the public.
3. A statement or descriptive listing of the spaces required, together with their respective sizes, relationships, and relative locations.
4. A statement of the kinds, types, sizes, and power requirements of equipment to be installed.

The foregoing elements definitely set the terms of the problem. "To an architect the design of a building is the solution of a definite problem," and, as Githens and Keally, the noted library architects, remark, "the architect starts his work by a careful study of the three phases of a problem, the organization to be housed, the nature of the site, and the amount of the building fund."[10]

[10] Alfred Morton Githens and Francis Keally, "An Example in Library Design," in *Commonwealth*, vol. 8, no. 10:7 (Oct. 1941).

Analysis of annual reports on the State archival level indicates the following range of activities for which space and facilities may be required:[11]

1. Housing noncurrent permanently valuable records of the State government.
2. Housing semicurrent permanent and temporary records of the State government.
3. Housing permanently valuable records of subdivisions of the State, notably county governments.
4. Housing manuscript collections from private sources.
5. Providing reference service, especially genealogical, by correspondence, by conference, and by telephone.
6. Providing research facilities for State officials, scholars, genealogists, and other searchers.
7. Publishing guides to holdings and volumes of source materials.
8. Providing a centralized photoduplication service (photograph, photostat, microfilm, Ozalid, and/or other duplicating equipment) for the archives, for other State agencies, and for the public.
9. Exhibiting archival and museum materials.
10. Conducting a records management program for State agencies, including the appraisal and disposition of records; specifying the quality of papers, inks, and equipment; and assisting county offices in their records filing.

There is a diversity of aims among archival agencies from State to State and from locality to locality; hence the foregoing elements, while generally basic, could be expanded or diminished according to the aims and conditions of each institution. The first few points of the above analysis pertain to housing needs for the storage of records. The remaining points relate to office space, searchroom space, laboratory space, records processing space, and exhibit space. The ninth point, pertaining to exhibition of archival and museum materials, is susceptible of such wide variations of emphasis that the resulting plan could change from strictly an archives to a combination of archives and museum. Preferably, however, these should be two separate buildings. If, in addition, there is unusual emphasis on the promotion of local history or the housing of a historical library, the building may assume the character of a historical society. The resultant program would then require a multifunction building, not a building simply for archival storage and service.

This writer believes that, if the aim is to house and service the permanently valuable noncurrent records of a State government most efficiently, a building dedicated to that single function is pref-

[11] Victor Gondos, Jr., "American Archival Architecture," in *Bulletin of the American Institute of Architects*, vol. 1, no. 4: 27-32 (Sept. 1947).

erable. A multifunction building not infrequently results in a complicated plan, as in the case of the Virginia State Library; and a complicated plan may well cost more per cubic foot of space afforded than would a simple and direct solution.

The North Carolina State Department of Archives and History in its *Twentieth Biennial Report* clearly sets forth the desirability of an independent archival establishment in the statement:

> . . . the Department should be provided with a separate building. . . . the Department can render more effective service if it is in a building all to itself, where conditions meeting its special requirements (such as temperature and humidity control, space arrangement and loading, fire and security protection) can be maintained.

Another assumption that must be guarded against is the belief of some that because an archives is to house noncurrent State records it is practicable, economical, and advantageous to provide space for it in a newly projected State office building. With respect to this fallacy, the Vermont Public Records Commission states:

> the opinion and practice in other states is overwhelming against including archives in office buildings. . . . it will be only a question of time before the current files of the various offices will . . . crowd the archives out . . . . Furthermore, space for archives calls for different building specifications than office space, such as height of ceiling, lighting, special protective equipment, vaults, etc.[12]

But whether a multifunction or a solely archival building is to be designed, the most perplexing problem is that in archival design (unlike that of libraries and schools) few tested, compiled, and generally accepted standards exist. There are strong differences of opinion on whether record areas should be of library-stack construction or cellular-vault construction; whether documents should be filed flat or filed vertically; whether flexibility of plan should or should not be sacrificed where monumental effects seem desirable; whether windows in stack areas are or are not injurious to records; whether the entire building should be air-conditioned or only those areas in which the staff is likely to operate; and whether —and to what extent—provision should be made to care for other than paper records—for microfilms, motion picture films, and the whole range of the new audiovisual records.

Other major questions to be decided in compiling the program relate to the optimum ratios to be applied to space distribution in the building; that is, the square-foot allocations to the few major

[12] *First Report of the Public Records Commission to the General Assembly of the State of Vermont*, p. 44.

subdivisions: the stack areas, the administrative offices, the workrooms, and the public spaces. As to the last, the question of how much space should be allocated to the lobby and exhibit hall—that is, to public relations—is wholly a matter of local preference. As to the interaction of staff and space, a building program may have far-reaching effects on internal organization, particularly when there is great disparity between the old and the new quarters. "A new building is planned for an increased service," states Randolph Church, and "the internal organization which functioned in cramped quarters must be widely changed . . . . Relationships between the duties of sections and divisions must be altered, the staff must be expanded, the budget must be materially increased . . . ."[13]

With the mass of data now at hand it is possible to analyze furniture and equipment needs, to secure literature from qualified firms, and to compile the sizes and roughing-in measurements needed for the planning phase.

At this point, too, before final compilation of the program, it is preferable to discuss (with technical advisers, any available or retained specialists, and manufacturers) ways and means of saving costs by specifying durable materials requiring low maintenance costs and to arrive at a general agreement concerning construction methods to be used—such as modular construction—in order to achieve as much flexibility and economy as possible.

A checklist should now be compiled, listing spaces and facilities and as much equipment and materials as have been initially agreed upon. With this relatively firm information on hand it is possible to reduce the program to charts and the final descriptive statement.

Two charts can be developed: one chart portraying the existing areas and relationships of the various parts of the present archives, which will probably reveal the amorphous, haphazard relationships of existing spaces and facilities, the other chart showing the desired areas and relative locations in the proposed project. As a result of such a graphic portrayal, Church, the State Librarian of Virginia, comments, "The architects were able to translate their requirements into a suitable structure."[14]

A typed descriptive statement or program document should accompany the charts for a new archives building. The statement may be divided into several topical subdivisions:

[13] Randolph W. Church, "A Library Reorganizes Through Building," in *College and Research Libraries*, 5:315-321 (Sept. 1944).

[14] *Ibid.*, p. 318.

1. *General Considerations.* Here can be given some general ideas and suggestions relating to: the funds available, estimated future expansion needs, size desired, and style conformity to surroundings; functions and activities and the workflow, especially with respect to accessioning, servicing, photoreproduction, and document restoring; relationships with cognate institutions, such as the possible joint sharing of receiving and loading facilities, fumigating, photoreproduction, and the like with a State library, museum, or historical society; the number, nature, and organization of the staff; and any other matters that are of general import to the project as a whole.

2. *Storage Areas.* Here can be given the estimate in thousands of cubic feet of records storage space initially needed and the annual increment for a 10-, 20-, or 30-year period in the future; the number and size of maximum security vaults; and provisions to be made for supplies and stores.

3. *Working Areas.* Here can be given an approximate idea of the size, location, requirements, materials, and equipment for receiving and loading areas, fumigating and cleaning areas, records processing areas, the photographic laboratory, and the document repair room.

4. *Administrative Areas.* Here can be given the size, relative location, and appointments for the archives director's office, the assistant archivists' offices, secretarial offices, reference office, and any other offices needed or desired.

5. *Public Areas.* Here can be given the desired size, relative location, requirements, and furnishings, as well as estimated average and peak loads, for the searchroom or rooms, exhibit hall, conference or lecture rooms, and related corridors, coat rooms, and rest rooms.

6. *Special Considerations.* Here can be included observations on desired architectural effects, construction details, and materials for such items as walls, flooring, doors and hardware, lighting, and sanitary conveniences; on heating, ventilating, and air conditioning; on such mechanical features as elevators, pneumatic tubes, vacuum outlets, intercommunicating telephones; on such fixtures as drinking fountains, built-in lockers and shelves, and electric clocks; and on protective and security systems and fire alarms.

As a result of such careful programing by the building committee, the archivist, and their technical advisers, definitive answers will come. The architect, knowing the specific limits of his problem, will be able to plan a better building.

Planning

After compilation of the program, based on specific site conditions, the next problem is to decide how the space and facilities needed will be laid out in order to afford maximum protection to the records and to facilitate operations. Nowadays it is much less necessary than formerly to remind most architects that an efficient building can be designed only from the inside out, not from the outside in. For that very reason, too, laymen should refrain from insisting on some preconceived notion of proper architectural style.

It may be impossible to get the best plan by insistence on style rigidity or purity. The mandatory rule here should be that well-tested rule, rediscovered by Louis Sullivan and some of his contemporaries and practiced by their successors: "Form follows function."

One of the first questions to arise in this age of incessant change is the kind of building that is to be planned and the degree of flexibility desired. At this point some are uncertain whether there is a difference between a record center and an archival building. Both types of buildings house records; hence, if absolutely necessary, it is possible to use either to perform functions pertaining to the other, but there is virtually certain to be a loss of efficiency in such mixed use. The principal reason for differentiating between the two types is the difference in record handling and servicing. Corollary reasons are location and symbolic significance to the community.

As conceived in American practice, record centers are way-stations for records en masse. Most of the records periodically taken in are disposed of within a brief span of months or years, and relatively few are transferred to the archives as permanently valuable documents. It is most economical to pack these transient materials in cheap, 1-cubic-foot, paperboard boxes, which when filled are three times as heavy as the average archives container. Because ease of reference service is not a controlling factor, the record center boxes may be placed 10 or more shelves high, thus requiring a ceiling 50 to 100 percent higher than in normal archival storage space. Also, other spaces and facilities usually to be found in a well-appointed archives, such as adequate searchroom facilities and fumigation and document repair facilities, are not as a rule incorporated in a record center. Because of the intensity of loading due to ceiling height, there may be more pounds-per-square-foot floor loading for a record center than for an archives.

Since part of the economy of a record center is due to its location on cheaper land in the outskirts of a city or in a warehouse district, its architectural design can approximate the rigidly bare essentials of wall and fenestration characteristic of a warehouse. An archival building, on the other hand, is usually situated amid public and semipublic buildings; and, with them, it symbolizes the community's desire for a certain degree of architectural embellishment. If, in addition, the archives establishment is part of a multifunction building containing other cultural institutions of the community such as a library, a historical society, or a museum, the resulting edifice may be architecturally elaborate.

The differences in the characteristics of these types of buildings become evident when one considers the comparative ratios of stack areas to all other areas. In the distribution of gross space there does not appear to be any major difference between fully developed American and European archival structures; but both these differ substantially from the space distribution observable in library usage on the one hand and in the newly developed American record centers on the other. The stacks, after all, are the heart of the archives, whereas they are less important in libraries and all-important in record centers.

It may be hazarded as a curbstone opinion that a compilation of most European and American archival plans would show a 60 : 40 relationship; that is, the record storage stacks are 60 percent of the total square feet available, and administrative and all other areas are 40 percent. In individual instances, of course, this ratio will vary plus or minus 5 to 10 percent, depending upon the amount of lecture hall or exhibit space used. But the 60: 40 ratio is at least a figure to keep in mind in planning a new building.

In contrast to the foregoing practice, most libraries use but 20 percent of stack space against 80 percent for all other activities. Record centers differ radically, for the ratio of stacks to all other space is exactly the reverse of library usage and may be as high as 90 to 10.

The layout of an archives building has some features in common with that of a large research library. Both have to provide for the economical storage of large masses of material that must be produced without great delay for use in reading rooms and workrooms and must be subject to general management by an administrative staff. Ideally the rooms and offices where staff for the use and administration of the materials is located should be as near the center of the mass as possible so that all parts can be reached along radial lines. But such a spherical ideal must, of course, be adapted to the generally rectangular lines that prevail in building construction.

The editors of *Planning the University Library Building* identify five variations of stack location in existing university libraries: rear location, center location, vertical location, peripheral location, and divisional or compartmentalized location.[15] Heretofore the rear location has been most common both in library and archival build-

[15] John E. Burchard, Charles W. David, and Julian P. Boyd, eds., *Planning the University Library Building*, p. 55 ff. (Princeton, 1949).

ings. In all buildings of this general type, however, much of the stack area is comparatively far from the reading and work areas.

Placing the stacks in the center of the building makes for compactness of storage and economy in construction but not for easy administration. Such an arrangement necessitates a circumferential corridor, which involves long and circuitous lines of travel between the peripheral reading rooms and departments on opposite sides of the central stacks. This inconvenience can be obviated to some extent—but at some cost in space—by having cross-corridors that cut through the stacks. Central stacks, moreover, cannot be easily extended.

Stacks located above or below the reading rooms and administrative offices have some advantages, provided that the elevator service is adequate to handle heavy traffic. But like the central stacks this arrangement is ill suited for expansion.

Peripheral stacks, once in favor among some university libraries of the United States, have generally been abandoned as unsuited to a large and rapidly growing library. But the objections to them in a library do not run with equal force against peripheral stacks in an archives.

The editors of *Planning the University Library Building* favor the fifth plan enumerated, the divisional or compartmentalized location, by which all parts of the building are equally adaptable for stacks, reading rooms, offices, and work space—the so-called modular plan.[16] This plan might also have attractions for archivists who have been hampered by the rigid distinction between stack space and reading rooms. In fact the National Archives of the United States, in its peculiarly awkward building, has been constrained in several instances to fence off parts of its stack space to make research rooms for archives users. But this has been done reluctantly in the face of necessity—not as a matter of free choice. For in the United States as elsewhere the basic rule is accepted that the storage areas, wherever they are placed, should be isolated from the areas frequented by the public and from specialized working areas by solidly constructed firewalls.

Among the newer archives buildings and plans for buildings that have lately been presented in the pages of *Archivum*[17] and the *Archivalische Zeitschrift* relatively short lines of communication have been shown for small archival structures in the tower plan of

[16] *Ibid.*, p. 60.

[17] See the illustrations accompanying Michel Duchein, "Les Bâtiments d'archives départementales en France," in *Archivum*, 6:108-176 (1956); and I. Voronin, "La Construction des bâtiments d'archives en U.R.S.S.," in *Archivum*, 7:3-9 (1957).

—Photograph by Ezra Stoller Associates

NEW JERSEY STATE LIBRARY–ARCHIVES BUILDING

The article by Kenneth W. Richards, p. 485-490, describes the building.

Seine-Maritime at Rouen, the central stack construction of Indre-et-Loire at Tours, the adjacent block arrangement of Cantal at Aurillac, and the standard "H" plan prescribed by the Soviet Union for archives of 1,200,000 pieces.[18]

T. R. Schellenberg, formerly Assistant Archivist of the United States for the National Archives, emphasizes the importance of having "good interior lines of communication,"[19] making all stack areas easily accessible to the central searchroom, special searchrooms, and administrative offices, and to all members of the archives staff, who can work most effectively when they are within easy reach of each other, even though their special responsibilities may relate to particular parts of the archival holdings. This principle, unfortunately, was not followed in the construction of the National Archives of the United States, with the result that access to the stacks from the general administrative offices and central searchroom is roundabout, while the offices of divisions and branches with their adjoining special searchrooms are out of the way for the public and so remote from each other and from the general administrative offices that supervision and coordination of their activities are difficult.

The principle is perhaps less important for small archives, where the distances in any case are not great; and it is consequently often ignored. In Europe the insistence on separate buildings for stack areas often results in unnecessarily long lines of communication.

Michel Duchein in reviewing the large program of new archives construction in France lays down the following principles:

1. Easy access for trucks to the receiving and loading areas.
2. Easy communication between the receiving and the sorting or selecting rooms (if they are not the same room).
3. Easy access for the public to the places open to the public.
4. Relative isolation of the director's office.
5. Strict distinction between the storage areas on the one hand and the working and public areas on the other.[20]

Winter makes some detailed suggestions relating to the allocation of space:

1. Immediately next to the record storage building (perhaps in the intermediate structure connecting with the administrative wing) there should be a receiving room.

[18] A similar "H" plan was described with approval by Louis A. Simon in his article entitled "Some Considerations on the Housing of Archives," in American Historical Association, *Annual Report . . . 1916*, 1:147-151.

[19] T. R. Schellenberg, "Modern Archival Buildings," in *Archivum*, 6:90 (1956).

[20] Duchein, in *Archivum*, 6:118.

2. To avoid long lines of transportation the exhibit hall and public reading rooms should be as near as possible to the storage area.

3. In the administrative building proper there should be: (a) offices for the personnel; (b) reception room, conference room, and auditorium; (c) reference library with catalog space; (d) registry and mail room; (e) archives processing room; (f) technical work rooms—for documentary restoration, photography, film handling, and duplicating; (g) central switchboard; (h) cloakroom and washrooms; (i) elevators both for people and for records; (j) miscellaneous storage room for such things as boxes, furniture, and wastepaper; (k) heating, air-conditioning, and mechanical areas; (l) garage; and (m) parking place.

Winter particularly reminds us that the library should have adequate room for the inevitable enlargement of its holdings and that the rooms open to the public should be segregated from those for the staff; but that the staff library as well as the public auditorium, exhibit hall, and searchroom should be as centrally located as possible in order to be easily reached by all personnel. He recommends that the halls of the administrative building on every floor should go straight through and not be interrupted by the library or searchroom—above all that general traffic should not have to move through the searchroom.[21]

The principal operations to be considered are receiving, cleaning, repairing, arranging, storing, inventorying, and servicing. It is necessary to study the equipment, circulation, and traffic flow requirements of these operations in connection with the planning of space. Some facilities may be capable of considerable expansion in case of a storage or accessioning emergency while others may prove to be bottlenecks prohibiting any work rate beyond a certain maximum.

The architect should be informed as fully as possible regarding the way in which an archives operates so that he can plan intelligently the layout of working areas. Thus the size of the receiving and loading platform and immediate storage areas may limit the amount of material that can be received in any specified period of time and may thus limit the yearly intake. The architect must know, then, that the space, facilities, and maximum annual accessions expected are all properly integrated. The air-stream gun and air-filter cleaning unit and the fumigating apparatus are prime causes of bottlenecks. Cleaning can be postponed, but fumigating must be done without delay. The architect therefore must be sure that the fumigating space and equipment are adequate. In his turn the

[21] Winter, in *Archivum*, 6:95 ff.

archivist can advise correctly only if he has prepared an approximately accurate statement of the annual accumulation rate of records of feeder agencies, the expected percentage of permanent records, and the maximum rate of annual accessions. Furthermore, the archivist should have his equipment selected long enough before the completion of the structure so that the architect can rough in dimensions of the equipment and the needed conduits, sockets, and outlets.

The foregoing summary of programing and planning is based on present knowledge and practices of the science and art of creating archival buildings. Future developments are likely to change our concepts. There may emerge a modular system of design based upon standard dimensions of structural units, equipment units, and documentation units. In the field of human communication the whole art of the documentation and retrieval of information is rapidly changing: tape recording, microfilming, data computers, and punch cards are but some examples.

To meet developing conditions it is likely that an ideal plan for a modern archival structure will require (1) unobstructed floor space throughout; (2) variable ceiling heights, so that any part of the structure could be raised or lowered; and (3) unlimited power outlets throughout, so that any type of machine, apparatus, or instrument could be used anywhere at any time.

When the *rate of change* is phenomenally rapid, it compounds the difficulty of foreseeing the future. With our knowledge of the state of today's art, however, we must do the best we can to accommodate the future in our programing and planning.