The Extended and Experimenting College Library
Configurations and Functions
of the
Academic Library in Transition
by
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COLLEGE LIBRARY

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SUMMARY

There were four objectives in this first phase in developing the concept of the experimenting and extended college library: 1. exploration of the configurations, functions, and operations of the academic library in transition; 2. initial analysis of the elements of such a library in the context of an experimenting institution, i.e. Hampshire College; 3. design of a building for these elements; 4. analysis and prediction of interlibrary cooperation within a multi-college community. Building design was completed to include, as integral parts of the library, a book library, bookstore, display gallery, computing center, and an information transfer (INTRAN) experimental center. The building is now under construction.

The challenge for libraries is the creation of a new institution merging the best of the traditional library with a readiness and capability to make maximum use of innovation in communications technology. To do this several things are necessary. First, the library must contain not only books, but all forms of media relevant to the educational process, not as additional packages but as integral parts of the learning process. Second, the library must extend itself to responsibilities not normally included in the conventional library. Third, the library must be open-ended.

Within this context the project was directed toward a definition and preliminary analysis of factors involved in the transition process. Studies have been initiated in library cooperation among the five institutions of this area. A preliminary model was designed to predict the impact of a new college on other local libraries. A new library should have a machine readable base from the beginning. The project staff is reviewing the implications of MARC records and commercial processing on the automation of the college library. The relationship of book and non-book materials will be a critical problem for libraries in the future, as they move from object-oriented to communications-oriented institutions. Relevant to this is the concern of the project to isolate and analyze qualitative methods and criteria for predicting technological change and to assess its effect on library building, functions, and organization. Finally, the project is concerned with definition of experimental situations that can be undertaken when the college is in operation in 1970. Two approaches have been of particular concern: the combination of library catalog and record of bookstore inventory so that the user can have the option of borrowing or buying; the development of a context in which the library could be largely student operated.
I Background and Philosophy of Hampshire College

Hampshire College is a new, independent, experimenting liberal arts college which will open for students in 1970. It is intended specifically as a national pilot enterprise for innovations of quality in American higher education. Hampshire was brought into being through the initiative of faculty and administrative leaders of four institutions in the Connecticut Valley of Western Massachusetts: Amherst, Mount Holyoke, and Smith Colleges, and the University of Massachusetts. Hampshire is the result of planning begun in 1958, and its establishment was approved by the trustees and faculties of its four neighboring institutions. In 1965, the new college received a pledge of $6 million from Harold F. Johnson, an Amherst alumnus, and was incorporated under a charter granted by the Commonwealth of Massachusetts.

Franklin Patterson was appointed in April 1966 as the first President of Hampshire College. Dr. Patterson formerly was Lincoln Filene Professor of Citizenship and Public Affairs at Tufts University and was the staff director and a member of the Carnegie Commission on Educational Television.

The College now owns more than 500 acres of land in the towns of Amherst and Hadley, and is in the process of planning a campus and buildings. The architects, master planners, and architectural consultant are, respectively Hugh Stubbins and Associates; Sasaki, Dawson, DeMay Associates, Inc.; and Pietro Belluschi. Over half of the $24,500,000 needed to create the 1970 campus has been raised. Hampshire plans to have a student body of approximately 1500 by the middle of the 1970's and may expand in time to 3600 students.

The history and character of the early planning for Hampshire College are detailed in Working Paper Number One, The Making of a College, by Franklin Patterson and Charles R. Longworth (Cambridge: The MIT Press, 1966). This volume which elaborates the intentions of Hampshire College, is not considered a static blueprint, but a thorough approximation of all aspects of the College's planning.

The Hampshire College program, as presently planned, introduces a number of departures from conventional academic procedures; among them a three-School academic structure instead of the more fragmented departmental arrangement, a flexible time schedule of three sequential Divisions in lieu of the usual four-year rule, and replacement of fixed graduation requirements based on prescribed course credits by a system of comprehensive examinations and independent research or creative projects. Time off campus will be encouraged for travel, work periods, independent research, and community service.
Hampshire College will undertake an innovative role in three broad inter-related realms of higher education. First, the College will seek, through continuing experimentation, consultation and review, to redesign liberal education so that

... it better serves the growth in every human dimension---intellectual, emotional, intuitive, sensuous - of those who comprise its community, and thus offers a more substantial ground for continuing self-education and self-expression;

... it may be a more effective intellectual and moral instrument of responsibility for the quality of life in America.

Second, Hampshire will seek new ways of securing the economic viability of the private liberal arts college in an era in which the demand for quality education is confronted with rapidly rising costs.

Third, Hampshire intends to spur the further development of inter-institutional cooperation in education in the Connecticut River Valley of Western Massachusetts, thereby serving the interest both of educational vitality and sound economy. Hampshire will thus aim to demonstrate nationally the advantages of a regional complex of closely cooperating public and private institutions.

The rationale for these fundamental aims and some of the current working guidelines for their development are set out in The Making of a College. Since publication of that volume, further planning has resulted in the design of research and development programs in major areas of academic and extra-curricular policy.

For example, the program of the School of Humanities and Arts will engage Hampshire's students in the active practice of the arts, leading them to join scholarship and performance, inquiry and expression. Workshops in dance, drama, and music will be developed; the bringing together of diverse art forms will be encouraged in student projects and performances; and special subjects will be introduced such as ethnic dance, folk and popular music, mythology and folklore. The School will emphasize visual awareness: through studies in the history and aesthetics of photography, film, and television and the understanding of these through active practice in them; and through a study of design, leading the student to an understanding of the power of visual forms to determine and give expression to his experience. He might consider the designs of chairs and pans, of automobiles and billboards, roads and streets, homes and buildings, and finally, the designs of cities.

As another example, the School of Natural Science at Hampshire, which is developing its science and mathematics curriculum through a grant from the
Sloan Foundation, has under consideration a program in human life science as a possible major component of its curriculum. The urgings and warnings of imaginative biologists such as Rene Dubos of The Rockefeller University make it clear that the study of human ecology can be neglected only at great risk to man and his future. Such a program would be interdisciplinary, and would draw upon the resources of the School of Social Science, especially if Hampshire should focus on psychobiology in accordance with a recommendation made by Dr. Frank Ervin of the Harvard Medical School.

A major subject of the Hampshire curriculum in all three of its Schools will be language. Hampshire intends the word in its widest sense, proposing that the student consider the great variety of special languages which men have evolved to communicate with each other and to lend form to their experience; and that he become alive to the problems of communication in our time, problems of change, inundation, and misunderstanding between men. In freshman seminars in "Language, Logic, and Value" the student may confront his native language as the enormously complicated syntactic, semantic, and pragmatic device it is. During second-term freshman seminars in "The Language of History" the student may consider, for example, narrative styles as indices and determinates of the historian's judgments and so of the history that is recorded. Other seminars concerned with language will be devised in all Schools of the College: e.g., the formal languages of mathematics and the computer, in the School of Natural Science; psycholinguistics, and the problems of the computerization of natural languages, and the cultural determinants of language, in the School of Social Science; and the languages of the mass media, of press, radio, and TV, in the School of Humanities and Arts.

Another specific area to receive intensive development is the integration of non-curricular with curricular student activities. In an attempt to combat the tendency toward fragmentation of life on campus, Hampshire College will seek means of bridging the gap between students and faculty, between students from middle class backgrounds and students from economically disadvantaged backgrounds, between psychological counseling and academic counseling, and between academic study and public service. The Carnegie Corporation of New York has underwritten the planning of these areas with a grant.

Hampshire College is explicitly designed to serve as a source of innovation and demonstration for American undergraduate education. The implications of this fact are threefold. First, while determined to avoid the kind of "laboratory school" role which so often compromises the institution's primary responsibility for its own students, Hampshire intends to develop and conduct its programs with a careful eye to their transferability: many of the lessons learned should be applicable to other settings. Second, the College will develop new techniques for self-evaluation, so that its experimenting character does not devolve into just one more narrow, rigid "experimental" orthodoxy. Third,
through a continuing series of conferences, consultations, and publications, Hampshire will solicit other relevant experience and make widely known the results and review of its own efforts. The subtitle of The Making of a College - Working Paper Number One - implies a series of monographs dealing with different and successive aspects of the College's life as it unfolds.

II Review of Activities

There were four objectives in the first phase of this development of the concept of the experimenting and extended college library.

... Exploration of the configurations, functions, and operations of the academic library in transition.

... Initial analysis of the elements of such a library in the context of an experimenting institution, i.e. Hampshire College.

... Design of a building for these elements.

... Analysis and prediction of interlibrary cooperation within the five-college community.

To accomplish these ends, and in particular the design of the building, the first part of the project period was spent in deriving a sufficiently solid definition of functions so that a building could be designed. Two conferences were held to assist the project staff in this process.

(1) The Relationship of Information Transfer Systems and Experimentation to the Book Library (January 25-26, 1968)

(2) Planning for Automated Systems in the College Library (March 14-15, 1968)

An outline of the questions considered and a list of consultants at each conference are attached as Appendix A. Tapes were made of both conferences and are now being reviewed to determine the feasibility of editing them for publication.

In addition, consultants were brought to Hampshire College, (See Appendix A, 3) for discussion in the following areas of interest: the library and the educational process; media facilities and exploitation; integrating the library and the bookstore; library networks and cooperation.
Building design was completed in cooperation with the architects, Hugh Stubbins Associates, and consultants. The building will include, as integral parts of the Library, a book library, bookstore, display gallery, computing center, and information transfer (INTRAN) experimental center. Ground was broken for the building in November 1968. Within the constraints of economics and diversification of media and operations, we believe the design offers flexibility for innovation and experimentation.

By reviewing the functional components of the Library, one can see the way in which its design reflects the demands to be made upon it. One section, comprising the two lower floors of the Library, will house television and film studios, photographic and graphics workshops, experimental classrooms and laboratories in which to develop and test media; computer space; duplicating services; and facilities for connecting users to data banks and computer programs in other locations. Taken together, these features make up the Information Transfer (INTRAN) Center. The INTRAN Center, which is administratively integrated with the Library but which will have its own Director, represents the space, leadership, equipment, and commitment necessary to adapt to change and to develop experimentation with learning and with the Library.

The Center is the most visible evidence of a college-wide concern to use the new media in all relevant aspects of education. Among the functions of the INTRAN Center will be instruction in media preparation and use; analysis of the impact of media on the individual learning process; development of computer aids to education; assistance in the review and evaluation of the progress of the College; and encouragement to students and faculty to be more self-sufficient in the use of total library facilities. It will also be a place for creating, storing, and distributing materials in all media, a central nervous system linking the Library with the rest of the campus, and a place for students to learn the skills necessary to use the various technologies creatively. The INTRAN Center, then, is far more than a media resource center; it includes experimentation, educational involvement, and open-ended exploration of a more effective role of the Library in the college community.

Hampshire College's respect for the values of the book as an essential tool of our tradition is reflected in the fact that two-thirds of the total available space in the Library is designed for conventional library services. Even so, the design of this space allows for great flexibility in response to changing conditions. The other one-third of the space is specifically designed for new information-serving functions.

The book library is arranged for browsing in open stacks, as well as for easy maintenance by the staff. Processing by a commercial firm will reduce the amount of space customarily devoted to cataloging and processing and
will free staff for services more directly related to users' needs. We expect commercial processing to reduce accessions costs considerably. The Library records will, from the beginning, be in machine-readable form. There will be space for 210,000 volumes, 50,000 microforms, 600 current periodicals and 10,000 non-book items.

Listening and viewing carrels, in sizes to serve individual students or small groups, are located near the reference collection and will be serviced from the circulation desk. Stack floors mix book shelving with carrels, small lounge areas for readers, and six faculty carrels.

The bookstore is located on a main traffic artery near the entrance of the building. It will be a direct extension of the Library, under Library management. As the automation of the Library catalog becomes feasible, the Library catalog will be combined with the record of the bookstore inventory, giving the user the option of buying or borrowing.

The display gallery is designed for exhibitions of everything from paintings to primary form structures, from rare books to computer-animated films, from light sculptures to kinetic art. It is located immediately east of the entrance to the building, with the central area of the gallery rising three stories high. One-story alcoves run around the gallery's outer edge for the exhibition of smaller displays; one alcove can be blacked out for films. The function of the display gallery is to suggest, to tempt, and to communicate in a public manner.

Underscoring the Library's role as the central meeting place for the campus and a center for communication is the location of the post office on its ground floor.

III Configurations and Functions of the Academic Library in Transition

Academic libraries built during the last third of this century will still resemble conventional libraries, but the resemblance may be misleading. This is because the definition of a library is changing rapidly, and will continue to do so for some time to come. The challenge, then, for new libraries is the creation of a new institution merging the best of the traditional library with a readiness to make maximum use of innovation in communications technology. They must, for survival, be prepared to offer conventional services, while at the same time experimenting with and changing those services.

Those responsible for college libraries are thus under increasing pressure to re-examine library processes and, more fundamentally, to reassess
the reasons for the libraries' existence. They will be faced with an increasing number of critical decisions: to automate library processes; to standardize systems; to seek integration of book with non-book media; to develop cooperative agreements and networks; to use sophisticated communications systems; to become initiators in the educational process; to develop standards for analysis and evaluation of their own operations. Changes in technology, in curricular design, in costs, in types of students, in the services demanded, and in the patterns of learning are happening so fast that a critical change in libraries is imperative.

A library can no longer be only a sophisticated warehouse storing and dispensing knowledge to students who happen to come in its doors. Instead, the library must be a center for the creation, use and distribution of knowledge in a variety of media, communications-oriented rather than book-object-oriented.

To move from passive warehouse to dynamic process, several things are necessary. First, the library must contain not only books, but all forms of media relevant to the educational process. More importantly, these must be viewed not merely as additional packages to process and to store. Rather, these forms must be relevant and appropriate to the learning process. And the library itself must play an active role in this process. Second, the library must extend itself to responsibilities not normally included in the conventional library. The bookstore, audio-visual activities, computing services, and institutional research are a few of the elements that, together with the traditional book library, will strengthen each other. Third, and perhaps most important, the library must be open-ended. Because of the dynamics of communications technology, libraries must be designed and operated so that they are more adaptable to change than they are now. We do not know what demands will be made on the library in ten or twenty years, but we do know that they will be different than they are today. By 1990, it is likely, for example, that the excellence of the academic library will not be measured by the extent and quantity of its collections but rather by the capabilities of its information processing system and hence its response to user needs.

Within this context of innovation and change, the Hampshire Library has been designed to be a demonstration model for college library development and operation in the last third of the twentieth century. To serve as a prototype for the coming decades the Hampshire College Library will:

... combine book library, bookstore, computing center, display gallery, and Information Transfer Center.

... be the nerve center of the campus connecting the Library
electronically with student rooms, faculty offices, class­rooms, other libraries, and information processing networks.

... have its materials ordered, cataloged, and marked by a comm­ercial firm so that staff energies may be directed toward help to the user.

... demonstrate the economies possible through the automation of library processes.

... experiment with student operation of the Library so that stu­dents, under professional guidance, will be serving their peers.

... explore and develop an active role for the Library in the teaching and learning process.

In short, we intend to create a dynamic and open-ended environment in the Library, from which the Hampshire student will develop a better sense of the organized complexity called communication. By becoming a more capable and sophisticated user of the new Library, a student will possess tools necessary to respond to two of the major challenges of this century, the information ex­plosion and the revolution in communications technology.

The Hampshire College Library will be a pervasive and innovative force in the education of students. By recombining related activities on the campus and by separating the important from the trivial, the Library will be able to con­centrate on the meaningful transfer, communication, and use of knowledge - for this is what libraries are all about. Further, like Hampshire College itself, the Library will be a catalyst for interinstitutional cooperation.

Within this context then, project activities were concentrated on the definition of problems and toward a preliminary analysis of the factors involved in change. In the first phase of this work, five problem areas have been isolated: interlibrary cooperation; library automation and processing; integration of media; effect of technological innovation on the library; and the function and organization of an experimenting library.

A. Interlibrary Cooperation: The Hampshire College Library in the Five­College Community.

The project staff, with consultants, has been concerned with isolating and defining those elements in library operations amenable to potentially fruitful cooperative efforts. To this end several areas are under study in the five-college area by project personnel: a survey of media services and
systems; an analysis of the probable impact of Hampshire College on the libraries of the other four institutions; and a study of the behavior and status of library users in the present four academic libraries.

With the assistance of Professor Richard Trueswell, Chairman of the Department of Industrial Engineering at the University of Massachusetts, we have made a study of the impact of Hampshire College on the other academic libraries in this area (and vice versa). The approach of the study was primarily directed at the definition of the concept of impact as it relates to library operations. A function list was developed, intended to model all operations that might be affected by the emergence of Hampshire College.

A preliminary model was designed to predict the effect of a new college on other local libraries. (see separate report "A Study of the Impact of Hampshire College on the Libraries of the Four-College Community." February, 1969). The usefulness of such a model and its validity with respect to the actual situation is a function of two factors: (1) the representativeness by the model itself (in terms of the model's variables and mathematical terminology) of the real life situation; and (2) the input data that is used in the model when it is evaluated. Within limitations, we are satisfied that we have met the first criteria. However, there is a paucity of critical input data, such as the average number of library users per day in a student body of given size, or the circulation rate per library entry.

The model establishes an algorithm for predicting the number of potential and actual users from college i who will use the library of college j. Based on several assumptions and assumed data, an estimate is predicted of the increase in circulation and interlibrary lending caused by a new institution. Average data was used. In some cases the data were estimates by individuals closely associated with the problem.

Outside the scope of this model are a number of considerations concerning the effect of a new college on established libraries. These factors can be fruitfully analyzed in several different categories.

(1) Public Service

How much service can a reference staff give?

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Should students receive instruction in library use, without specific location? How can this best be accomplished?

What will be the effect on interlibrary loan service among the libraries? There is already a daily messenger among the four libraries and an increasing load of loans, requiring screening and verification, may break an already overloaded system.

Will copying services be affected? If so, what is the effect on personnel and space planning?

(2) **Space.**

What is present and projected seating capacity of the libraries? Should regulations be established to control use of seats by students from other institutions?

(3) **Control.**

What effect will a new college have on loan procedures? What sort of regulations are necessary to guarantee access to materials by students of the home institutions?

(4) **Acquisition Policies.**

The libraries of the present four-college community have nearly 2,000,000 volumes in their collections. Is it feasible and economic to develop formal agreements on cooperative acquisition? HILC, the Hampshire Interlibrary Center (now sixteen years old and unrelated specifically to Hampshire College) has become a major and well-used repository for research materials. What should be its role in acquisitions?

(5) **The Five-College Community.**

It has become apparent, although our primary concern is Hampshire College in the community, that the problems really are not specific to the emergence of a new college. Consequently, it is expected that our study will probe rather deeply into the basic problems of five-college cooperation, and by implication, library cooperation in general. It is worth noting that there are almost 24,000 students presently enrolled in the four colleges, and this will probably grow to 30,000 by 1975. The emergence of Hampshire College, with
a predicted enrollment of less than 1500 in five years will hardly cause a large wave. The question really becomes one of defining the catalytic nature of Hampshire in regard to library cooperation, and that becomes a political rather than a systems problem.

B. Automation and Processing of Library Materials

The library has been designed physically to exclude most technical processing normally done in libraries. This means that such processes will be accomplished outside the library. We are now reviewing the economics, systems, and relationship to automation of such an arrangement with a commercial processor.

In designing the library and in planning our future processing operations, we have five principal aims:

(1) to concentrate all orders for all types of materials through one channel and to eliminate as much as possible from internal operations the traditional acquisitions department.

(2) to eliminate as much as possible from our internal operations the processing of materials, i.e. cataloging, classification, card production, marking, etc.

(3) to simplify the invoicing process and to relate the incoming invoice directly to automated accounting procedures of the college.

(4) to be prepared from the beginning, to have machine readable copy to the extent that we can, when desired, pull records from Marc tapes or from any other available machine store.

(5) to be able, from the beginning to participate in automated cooperative efforts among the five college libraries.

An analytic approach to this problem will be highly useful to both new and old libraries who wish to eliminate the processing routines from their internal functions. There are, however, a number of questions to be considered.

What are the relative costs of in-house and outside processing? An intensive survey of the literature reveals a disappointing paucity of solid and useful cost analyses of these operations in existing libraries.

Are the delays which appear to be present in commercial processing tolerable? How can they be overcome?
What are the factors in integrating non-book materials in this process? There are obvious differences in acquiring non-book materials, as well as in the cataloging process. Are these differences too great to allow efficient integration?

Will a simple machine-readable record at this time be sufficient to guarantee a useful automated program at a future date? Or will we merely be postponing and insuring a massive key-punching operation sometime in the future?

C. Relationship of Book and Non-Book Materials in the Library

This will be a critical problem for libraries in the future and is a significant factor in this transition period. Because libraries must be concerned with the total problem of campus and indeed inter-college communication, attention must range across the whole variety of media, and messages. The physical design of the Hampshire Library supports this concept, principally through the Information Transfer (INTRAN) Center which makes up two floors of the building and is integrated administratively with the Library.

The INTRAN Center is an essential element in Hampshire's search for economic and educationally relevant solutions to the problems of undergraduate education. Hampshire cannot today reliably predict the applicability of technology to education for 1975 or 1985. Hampshire can, however, prepare itself for change. Response to change will come as experience, opportunity, and imagination allow Hampshire to experiment with the effects of technology on education, and in particular of technology on the Library. The INTRAN Center represents the space, leadership, equipment, and commitment necessary to adapt to change, as well as the opportunity to develop experimentation with the learning process and with the Library. The Center is the most visible evidence of a college-wide concern to use the new media in all relevant aspects of education.

Within this context, the INTRAN Center will have a number of functions.

(1) As a base for experimentation with communications technology, the INTRAN Center will confront the issue which Jerome Wiesner, Provost of MIT and a member of the Hampshire College National Advisory Council, has suggested is central to the application of technology to education; the man-machine interface. It will be the responsibility of the INTRAN Center to devise means of introducing it to the
unitiated, demonstrating its potential, and training those who are interested in the necessary skills. The Center will also act as a laboratory for studying the impact of communications media on individuals.

(2) The INTRAN Center will be responsible for the development of computer applications to education. This will include the general area of computer-assisted instruction, and such specific areas as the use of computers to study natural language.

(3) In its efforts to make both rational and economic the administration of a college, Hampshire will use the facilities of the INTRAN Center to experiment with the collection and retrieval of much more information about the entire life of the college than is now generally available. Such information will provide the means to improve administrative effectiveness and to support research in the operation of a college.

(4) The INTRAN Center will concern itself with the development of means and materials to encourage students and faculty to be more efficient and self-sufficient in the use of library facilities, thus relieving highly trained librarians of routing question answering. Video, film, computer and manual displays offer a variety of presently unused possibilities to help the library user.

(5) The INTRAN Center, fully integrated with the Library, will also serve as a place for making, storing and distributing materials in all media. The key words are imagination and accessibility. The INTRAN Center staff must have a thorough awareness of its holdings and its production capacity, as well as an ability to relate a faculty request to them and an organizational style that minimizes obstacles to creative media use.

(6) The Center will also act as a central nervous system linking the Library to student rooms in the resident halls, classrooms, faculty offices, and administrative facilities. The INTRAN Center will act as a switching point to coordinate the campus use of closed-and open-circuit television and radio, and to access remote computer programs and data.

(7) The INTRAN Center will provide many opportunities for students to learn the skills necessary to use the various technologies creatively and to become intern staff members at the INTRAN Center. The students will thus be given a chance to participate in a central enterprise of the College, and encouraged to use the media facilities to produce curricular and other materials for themselves. The INTRAN Center will collaborate actively with the other four Connecticut Valley colleges in exploring the possibilities of information transfer. The aim will be economy and avoidance of duplication, moving toward a sharing - via
information transfer techniques - of Valley resources so that they may be made more accessible to all members of the interinstitutional community.

The INTRAN Center provides the basis for an analysis of a most significant extension of the Library, one which must become an integral part of library operations in the future. It is obvious that, from the description above, the INTRAN Center as planned is far more than a media resource center. More importantly it encompasses experimentation, educational involvement, and creative exploration for students, faculty members, librarians, and administration. These are necessary ingredients for the dynamic and participatory library that must develop during the Seventies.

There are obviously many questions to be considered, defined, and analyzed as this process of integration proceeds. In the role of problem-stater, we are - and have been - principally concerned in isolating problem areas, together with the conceptual data, and evaluation requirements necessary for rational consideration and operational solutions.


We have received a small grant from the Educational Facilities Laboratories (EFL) in support of a study of this subject. Our principal concern in these and related areas is to isolate and define those problems facing new (and possibly older) college libraries today, and to anticipate the questions they must consider as they move beyond conventional systems and extend into non-book media.

The purpose of this study is to isolate and analyze qualitative methods and criteria for predicting technological change and to assess its effect on library building, functions, and organization. The EFL Conference in the Summer of 1967 on "The Impact of Technology on the Library Building" is an excellent starting point. However, we conceive the library (the college library at least) in a somewhat broader sense than does the report of that Conference. In our context, the library is not only a passive repository and switching mechanism, but also a dynamic participant in educational processes, both formal and informal.

Planning new libraries for both new and old institutions finds us capable of taking advantage of a vast array of technological innovations - and that is a fortunate position indeed. But we are faced with constant new advances and change. And we are forced to make decision now as to what we think the state of technology, and its acceptance and feasibility, will be in 1975 or even 1985. Our purpose then is less to predict specific
innovation, although this may be an important by-product, than to develop methods for prediction and to design models for college library planning. Hopefully our experience can assist new college (possibly even old ones) in determining what their building requirements are, under a given set of curricular, economic, and local conditions.

There appear to be three general areas of concern.

(1) **Communications Technology**, including audio-visual communication and computers for routine library processing and information storage, retrieval and display. What are the problems - economic and structural - in obsolescence? in feasible devices?

(2) **The Man-System Interface**, including self-help, human question negotiation and acceptance of innovation.

What, for example, is the rate of change users will accept in a traditional institution such as a library? Will this rate of acceptable change be different for librarians, faculty members, and students? How can a building best be adapted to these (probably) different rates of adaption? How can a building be designed to encourage both service to users and experimentation.

Is it possible to begin to look upon a library less as a physical place and more as a network with a set of variable nodes scattered across a campus, or even campuses? What are the economic constraints? What is the effect of curriculum experimentation on library design and operation?

(3) **Prediction of Technological Innovation** and its impact on library building and functions.

Are there methodologies suitable for prediction? For example, the Delphi method developed at the RAND Corporation for predicting specific innovation. What are the constraints and weaknesses of these methods as they relate to building design problems?

E. **The Experimenting Library**

Together with the INTRAN Center, the concept of the experimenting library offers the opportunity to study and to experiment with the processes of communication and learning that take place in and through the Library. Recognition of the Library as an information processing institution, communications oriented rather than object-oriented, can do much to break down the usual barriers which exist between the library and the community it serves. With the Library a
subject for controlled experimentation and observation, students and faculty may become not only aware of the problems facing libraries, but also of their own decision strategies as library users. It is likely to be a particularly effective method of learning if ways can be devised for student, faculty, and staff to learn together, and to apply their findings to such a central institution as the Library. The Library itself serves as a subject of inquiry and becomes, with the INTRAN Center, a laboratory in which the student can observe and test himself as both generator and seeker of knowledge.

Some approaches to experimentation have been discussed above in reference to the INTRAN Center. In one sense all of what we are proposing is a prelude to experimentation, because it is obvious that many experiments cannot be conducted until the College is operational. However, the areas of concern and their parameters can be defined in the period before September 1970 when the first students arrive. Some of these are really not experiments in the classic sense, but represent rather an analytic approach to innovation and to new configurations.

(1) **Library and Bookstore**

Instead of making the Bookstore merely an unrelated department of the Library, we wish to explore the eventual feasibility of combining the two operations. After all, both handle packages called "books" or "records" or "tapes." One lends; the other sells or rents. As the automation of the library catalog becomes more economic, it may be possible to combine the Library catalog with the Bookstore inventory. This would offer the user the option of borrowing or buying. As copying of non-circulating materials becomes more prevalent, the two systems would tend to merge.

(2) **Student Operation of the Library.** In *The Making of a College* the possible role of students as teachers and tutors is discussed. There is no reason why this concept cannot be extended to the Library. Student involvement and responsibility, under professional guidance, would help in directing student curiosity and energy toward experimental concern with the processes of communication and self-help which take place in the library. Our principal concern here is to define feasible functions for which students could take responsibility, design a small in-service training, and check with other libraries who may have a similar approach.
APPENDIX A

Hampshire College Library Conference
Amherst, Massachusetts
January 25-26, 1968

Relationship of Information Transfer Systems and Experimentation to the Design and Function of the Library

Tentative Outline of Problems

The questions posed below are suggestive rather than prescriptive. They are stated only to provide a convenient summary of some of the problems we think are important. Some questions are unanswerable, at least in the form in which they are stated. Answers to others we hope will provide a frame of reference within which we can function creatively.

A. INTER-MEDIA RELATIONSHIPS

1. Handling Problems

   What special selection and cataloging problems exist with non-book media?

   Do (or will) non-book media fit into the MARC system?

   Can we physically integrate books and non-books in storage and still be practical?

   Will physical integration really help "intellectual integration"?

   What types of media can be stored "on line"? Is this possible in well-defined, high-use collections, e.g. reserves?

   Should non-book materials circulate outside the library? On campus? Off campus?

   Must AV materials be inspected after each use? How does this affect storage problem?

2. Accessibility

   How do we search for materials in non-book form? for specific information?
What relationship does storage have to accessibility?
How can we protect the copyright of non-book materials?
Should we store a master tape and circulate only reproductions?
What role can the computer play in search and retrieval? What relationship can the computer have to dial-access systems?

3. **Relationship of Print to Non-Print**.
   How can we best handle these various media so that they truly support educational objectives?

**B. INTER-LIBRARY RELATIONSHIPS**

1. **Handling Problems**
   Should the valley have a union catalog for non-book materials?
   How will inter-library loan policies affect such materials?
   What is the role of duplication (and/or reproduction) in the inter-library loan process?

2. **Accessibility**
   Should Hampshire College become the major center for these materials?
   If so, what is the potential of "dial access" from off-campus?
   What problems are raised by "dial-access" systems from remote, i.e. off-campus stations?
   What is the role of remote computer access, both for library materials and for programs or data available at other locations?

**C. INTER-PERSONAL RELATIONSHIPS**

What is the library's role - and the librarian's - in encouraging the acceptance and use of non-book materials? Does this role differ for students and faculty?

1. **Faculty**
   Assuming their efficacy, how can the use of non-book media and their integration with print be encouraged? In class? As extensions of the formal teaching process?
   How can faculty be made aware of new materials of potential use to them?
Are there ways faculty can maintain current awareness in all media?

2. **Student**
   
   Will student acceptance of non-book media depend primarily on the faculty? Or will the students, within the context of the INTRAN Center, put pressure on the faculty for such use?

   What physical arrangements are best to enhance student awareness of the continuum from print to sound to image?

3. **Experimentation**
   
   How can experimentation with communication processes and with the variety of media be used to enhance the learning process?

   Can experimentation in this field be viewed as another media? As a "meta media"?

D. **INTER-DISCIPLINARY RELATIONSHIPS**

   What will be the relationship of the INTRAN Center to the School of Language? Language carrels? Computational linguistics? Mathematics and logic?

   To the School of Humanities and Arts? Film production? The study of iconographic and aural modes of cultural expression?

   To the Natural Sciences? Computer programs and computer access?

   To the Social Sciences? Data collections? Computer programs?
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Hampshire College is a new undergraduate college formed with the cooperative support of Amherst, Mount Holyoke, and Smith Colleges and the University of Massachusetts. Hampshire has two goals:

1. To experiment with innovative solutions to the problems of undergraduate education.
2. To demonstrate the educational and financial advantages of cooperative activity among four closely situated private colleges and a large public university.

In planning for a college whose first students will live much of their lives in the twenty-first century, Hampshire College proposes to develop a library which will, within economic constraints, take maximum advantage of technological innovation, both in the automation of its routine processes and through the use of new media in the information transfer process. Although there is a relationship between these two, we are concerned at this meeting principally with the automation of routine library processes. Such automation is of course not an end in itself. Its purpose is to provide the beginning elements so that users (faculty, students, librarians) will have easier and more complete access to knowledge and information in the library.

Two criteria are basic to decision in these matters, and both are of equal importance:

1. The systems should be economic. That is, they should not cost appreciably more than conventional systems. At the same time, they should provide desirable services and administrative data not available from conventional systems.
2. These systems should free the professional staff members from routines so that they can dedicate most of their time to students and faculty. We wish to have all librarians intimately associated with the teaching and learning processes, even to the point of offering courses, serving as tutors, and assisting in the design of materials for instructional support.
Several important facts should be kept in mind. The Hampshire College Library is starting off de novo. We are not afraid to experiment, if we are convinced that solutions will meet our two criteria. We will have students and faculty in 1970. Our systems must be operable at some level by that time. We are starting to build the collection now.

Within this context, the immediate question then becomes: What should we do now (a) to control our present acquisitions; and (b) to guarantee that we will have an economic and operable system in 1970? This requires that we design a system for 1970 and then work backwards to insure that we take appropriate steps now.

A general breakdown of areas of consideration follows:

1. How can the Hampshire College Library participate in the attainment of the objectives of Hampshire College?

2. What will a system look like in 1970?
   What will it do?
   What kinds of inputs will it require?
   What kinds of information will it produce?
   What will it cost in operations? in staff? in equipment?

3. What will its relationship be to the other institutions in the Amherst area, to the New England Universities Library Resources Processing System? to the MARC System under development by the Library of Congress?

4. What steps can the Hampshire College Library take now? Can we design the card format and input so that we can start immediately to put the order process in machine readable form? the serials records? the catalog process? What are the costs?
   Can we anticipate remote scanning of the catalog? When? Does this require producing machine readable records now? If so, what format? Is it economic for a small college library to have an automated circulation system? Can a circulation system have any other than local usefulness?

5. What is the role and cost of commercial processing within an automated system? Can we economically move everything but book selection and user services out of the library?
6. How can non-book materials (audio tapes, video tapes, films, records, slides, etc.) be brought into an automated system?

7. Can the systems model we are designing be utilized by other new institutions? by established institutions? by groups of institutions?
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