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Library Trends

Library Uses of the New Media of Communication

C. Walter Stone
Issue Editor

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Library Uses of the New Media of Communication

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Introduction

C. WALTER STONE

While the case is not made in so many words, a strong negative impression might be gained from reading at one sitting the eleven articles which compose this issue of Library Trends. This impression would be that librarianship has completely "missed the boat" in developing newer media services; that necessary professional recruitment and training, both pre-service and in-service, are almost totally lacking; and that public library progress in the field is still "little by little and bit by bit." It would seem that the most significant work being done with new media on the college or university campus takes place outside libraries and that, when all types of libraries have been surveyed, only those school programs which have followed an instructional materials center philosophy are demonstrating any significant gains.

Aids for the selection of newer media are reported as inadequate. It is stated that the processing (including cataloging) of new instructional materials lacks basic standardization and that the rules set forth in the new Anglo-American Code do not much improve the situation. Research in the field is limited. Materials production service is "wide open" and requires management by a new breed of personnel not yet generally available. And also negative in its own way is a practical statement on physical quarters which advocates greater simplicity in the design of facilities and argues strongly against investing "too much" in audio-visual staffs and equipment for libraries.

Respecting library service generally, both professional association and government service agency programs concerned with newer media are either seriously deficient or wholly absent. And, to cite one special national problem, existing copyright regulations and those recommended in new legislative proposals impose too many restrictions on use of new media for educational purposes and, in particular, stand to block effective library applications of computer technology for information storage, retrieval, and transfer.

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Accepting, for the moment, the image of the field as depicted above, what should be done to remedy the situation? Almost uniformly the authors represented in this issue of Library Trends call for development of new service concepts; recruitment and training of new classes of professional as well as administrative service and technical personnel; inauguration of new methods of training and types of training activities; support of additional research, especially that which may eventually improve formal library science instruction; and, finally, identification of the responsibility for instruction materials or learning resources in formal education with a larger professional world than that represented solely by librarianship. Library service must be regarded as one part of a total program established for providing communication and information services. If, as some have suggested for education, a valid cutting line between library roles and those best assumed by other agencies lies at the point of defining individual versus group media service responsibilities, other disagreements arise when the various media are identified for use by both individuals and groups, e.g., films, radio and television, graphics, and computer service.

In short, it could be concluded from reading this issue of Library Trends that the newer media do not shine very brightly today in the professional skies of librarianship. They may be scattered, lost, or forgotten, and too frequently do not fit properly into the field at all except perhaps as noted in the case of some school libraries where there appears to be in progress an effective transition from administration of traditional book distribution service units to provision of a broad range of new learning resources in an instructional materials center environment.

Yet, despite these negative images, the chief message of the articles which follow is not that librarians have not done their job properly or that they should not be concerned with newer media; rather, it is positive and calls for both a basic reorganization or merger of the various professional fields involved, and a redefinition of library functions. The specific note intended to be struck urges the setting of new professional boundary lines without lamenting an apparent demise, or more likely, an evolutionary change through which performance of the library function must now pass.

Note: A special word of appreciation is due Sandra Shephard, Research and Publications Assistant, University of Pittsburgh Libraries, for extensive editorial services rendered during preparation of this issue.
The Library Function Redefined*

C. WALTER STONE

For years librarians have fretted about their responsibilities for providing audio-visual materials and other "newer" media. But now, when even the newest media may become obsolescent overnight, such concerns are antiquated and being replaced by more meaningful questions about how people interact with ideas in various surroundings and circumstances and about costs and the practical problems of handling knowledge regardless of the form in which it is presented.

The purpose of this article is to report on changes, both those now taking place in libraries and communication methods, and those which, it is anticipated, will in the future help redefine the library function and clarify the professional task. As for the task, the author's view is that no more important work is performed for the general benefit than that of managing the availability and flow of recorded ideas and information. Progress in every sector of human and work relationships depends upon the integrity and efficiency of these efforts.

A Revolution in Progress. In recent years, the library function has become too important in society to be entrusted solely to librarians (even when limited to service with print) or to any other single professional communications group, for example, those concerned with audio-visual aids and other so-called "newer" media. As used in this article, the phrase "library function" takes into account a revolution occurring in communications technology—a revolution which indicates that, within a few years, the technical genius of America will have developed electronic as well as mechanical marvels with communications capabilities far exceeding those of any resources presently known. Recent innovations, including those listed below, are already

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* Selected portions of this article were included in an address given on August 11, 1967, to a workshop for school librarians sponsored by the California Department of Education in Monte Corona, California.

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having a major influence on the growth of information and educational service programs:

Facsimile and data transmission devices; use of other electronic communication distribution systems (on a twenty-four hour basis); self-learning aids; cartridge-loading sound recording and video playback units; miniaturization and simplification of all forms of communications equipment; expanded capacities for storage of ideas and information both in microtext and computer tape form; dial-access devices; use of laser beams for transmission of information; satellite relay of TV signals; expanded use of microwave systems.

Because of new technology, it is unlikely that future communication and information services will be much concerned with either the input or final shapes of most messages. Transmission will be virtually instantaneous and printed media may well be bypassed except when temporary records are required. Use of individual response devices will become widespread and, in education, will probably be much in vogue.

As increasing reliance is placed upon larger and larger data "banks" stored in remote computer cores, the library and publishing functions may come close together for customized delivery of encyclopedic information, medical diagnoses, financial analysis, remote instruction, and management guidance. Access to remote data reservoirs will be achieved through individual interface with computer terminals. At least such is the shape of the future depicted soberly for publishers by Paul D. Doebler and Jules S. Tewlow.1

For librarians, all of this means that the future is calling for new institutions no longer concerned with supplying specific media but rather with providing access to recorded knowledge and communication services generally: recorded knowledge that may be distributed on demand by light beam pulses or via microwave technology drawn from data banks stored in electronic memories or new microforms and which may be searched out, retrieved, transmitted, and/or reproduced as required.

Acceptance of this or any similar view of the future requires a substantial personal reorientation on the part of many librarians and calls for a willingness to acknowledge the need for professional evolution—if not revolution—across the board in libraries, library schools, and within the library profession at large. In the future, the competence of those performing the library function will no longer be measured in terms of specific media backgrounds as such but in terms of subject
mastery and communications expertise. Needed to manage library services in the future will be several new classes of personnel including specialists in communications analysis, production, packaging, and evaluation; systems designers and analysts; and dynamic distributive program administrators. All must be thoroughly familiar with ways in which the various forms of recorded knowledge can be acquired, stored, retrieved, distributed, and used with maximum effectiveness.

With the shift from a materials-oriented operation to one concerned with knowledge as such, and with the increased handling by librarians of more or less discrete ideas and information, the library cliché, "Books are Basic," no longer applies. Of course, there should and will continue to be places in libraries to enjoy the world of books as objects as well as purveyors of knowledge. But somewhere between the nostalgic librarian-bibliophile, who sees increasingly that books are threatened and cries out with growing frequency, "Damn the machine!" and the rather more antiseptic personality of that he or she who can find in blinking lights and the whirr or whine of a computer attributes which generate affection, somewhere between these two is the realist who, in future libraries, will develop and establish new service programs which will make available both traditional access to books and reader's advisers as well as modern "computer tutors," and which will have mechanized information storage, retrieval and transmission facilities far superior to those now employed.

Such facilities are needed urgently. The knowledge explosion and related information-handling problems acknowledged widely in more recent years did not arrive suddenly. More than two decades ago it was noted by Fremont Rider that libraries do not grow in size arithmetically but tend to follow an exponential or parabolic curve, and that those located in better established American universities—at least the small number for which a few reliable statistics can be advanced—have doubled in size approximately every sixteen years since 1830. Bearing out Rider's conclusions in the main are results of a study completed in 1965 at Purdue. Purdue reported that for fifty-eight larger research universities, the average period of doubling since 1950 had been seventeen years, while the rates of annual acquisition had actually doubled in from nine to twelve years. When extrapolated to 1980, these figures suggest that holdings of larger research libraries in the United States could average three and three-quarter million volumes each.

Obviously, library doubling results from rates of publication. The
literature published in any normal field of scientific endeavor can be shown to increase exponentially and to double in quantity in from ten to fifteen years. Whatever the validity of estimates sometimes used to scare trustees and library administrators into approving larger and larger library budgets, the presses of the world do in fact now spew out some 2,000 pages of new text each minute. During the past eight years the number of monographic titles published annually in the United States has more than doubled. In scientific and technical fields, more than 75,000 journals are published regularly around the world and, in the United States alone, there are produced approximately 25,000 new technical papers every week along with 400 books and 3,500 articles. Experts have estimated that as much new technical knowledge may actually be generated and reported in the next thirty years as has been accumulated in the entire past history of mankind.

Given predictions of this magnitude it can be realized that, in the future, more knowledge than all that has been produced to date may well be distributed in non-traditional forms and formats. Production of more standard fare—books, journals, motion pictures, discs, slides, photocopies—will, of course, continue in the foreseeable future and at an accelerated pace. But such products will, of necessity, be outstripped by newer means of generating and storing knowledge, notably within computers.

In short, for some time we have known it to be unlikely that any library in the world (or any comparable agency) could ever hope to obtain, store and make available in an organized manner even a significant fraction of civilization’s printed records, not to mention the growing and, indeed, staggering volume of newer communications records which will be “published” in non-print form. Thus, at the close of the 1960’s, the world is threatened with an eventual drowning in mountains of words, pictures and other forms of communication and with suffocation by communications uncontrolled, disordered, out of sequence, and capable of being lost like individual grains of sand on a beach.

But the information problem is not caused only by the sheer bulk or massive weight which recorded knowledge has attained, although statistics relating to it are most impressive in themselves. There is another important problem and that is the problem created by the terms in which most librarians describe their jobs, plan buildings, and train and use their personnel, i.e., how they define the library function.
The Library Function Redefined

The Professional Challenge. The challenge which now must be put to those concerned is that of assuring continuing and easy access to recorded knowledge regardless of its rate of growth, present mountainous proportions, and growing variety of forms. As indicated previously, this is the most important work to be done. Responsibility for doing the job belongs with the communication and information service professions and, with respect to prerecorded ideas and information, it should be the chief business of those performing the library function, the conduct of which increasingly must take into account such a proposition as this—to paraphrase C. Ray Carpenter of Pennsylvania State University—if the most important inter-relationships which exist when the library function is performed are those which help attain a productive proximity between knowledge and those to whom the availability of such knowledge is essential, then in the long run, it will prove more efficient and effective to move information to people than to move people to information. Obviously, such a proposition has major implications for development of library service and recruitment and training of library staffs to serve the future adequately. Current proposals for expansion of “mail order” library service involving home or office delivery and regular use of book catalogs, telephones, and the postal service are early steps in this direction.

Another premature but promising step in the direction indicated is the use of teletype service to expedite interlibrary loans.*

* Recent reports issued by the Duke University Medical Center covering a six-library network, show the promise of TWX service. The following statements are quoted from a report forwarded to the author by Warren Bird, chief of the Library Systems and Communications Division:

The number of requests directed to others within the Group increased by 84% after the co-operative agreement. At the same time there was a 34% decrease in the number of requests directed to the National Library of Medicine. One of the primary goals of the co-operating Group was the increased use of regional resources as first choice for supplying material not in the library.

[Results also show] a substantial decrease in the time required to receive a loan from another member of the Group and from NLM. Vagaries in mail handling between a library and its local U.S. Post Office contribute considerably to variations in loan receipt time. This decrease in time was due to the conscious effort to process requests promptly, the use of TWX for increasing the speed of the interlibrary loan communications and the increased use of first class mail for photocopies.

The costs [of operating the service] suggest that a library in the southeastern United States should budget approximately two dollars for each interlibrary
But lest there be later misunderstanding, let us stop a moment and define the library function clearly, keeping future communications technologies in mind. “Performance of the library function” means the conscious interruption (as a unique and distinct professional contribution) of the total stream or flow of recorded ideas and information; the selective drawing off of manageable amounts for storage, later retrieval, and distribution to individuals or groups in whatever media forms or formats might be required and are appropriate to satisfy known or anticipated needs; the giving of advice concerning the availability and use of such materials; and the exercise, in behalf of producers as well as consumers, of both feedback and critical functions about the communication resources provided. To put it more specifically for one type of library, performance of the library function on a university campus should mean provision of the full range of recorded communication and information services (including necessary reproduction) required to sustain instruction and research.

So defined, the library function cannot be recognized easily when it is pictured simply in terms of traditional library buildings, staffs or materials. Rather it represents a dynamic, decentralized process better conceived as a set of communications networks or systems and subsystems which harness all types of modern technology and cross language as well as geographic barriers.

The Library of the Future. Looking toward 1975 and beyond, it seems likely there will arise, assisted by modern technology and to be administered as new institutions, several new types of communications service agencies which will be assigned rather broad responsibility for acquiring, producing, storing and making available not only the world’s literature in print but also the full record of society as recorded in other media. Also to be considered is the growing emphasis placed on development of the library as the student’s instructional home through the creation of study facilities and the “library college” type of programs. Such possibilities have already been explored in the United States and Canada; and they suggest development of several new types of academic and community institutions to replace traditional libraries and related service groups. Such agencies may, as single new units or using coordinating arrangements, pool

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loan transaction to be handled via TWX. Against this cost should be weighed improved service to readers, saving of time for library patrons, and potential savings resulting from cooperative acquisitions which become practicable as interlibrary loan service improves.
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their talents and facilities to devise new communications service programs capable of operating within local or regional economic restrictions to render the full variety of services needed including production, distribution, training for use, evaluation and research. If such proposals seem unfamiliar or futuristic, the ideas they represent have already been considered, e.g., in the plans for Columbia, Maryland, and in EDUCOM and in the very new centers for learning resources developed by secondary schools and junior colleges.

But simply because librarians are now conceiving their problems in words formerly used only by systems analysts and discussing them professionally in languages derived from cybernetics and coenetics, or because the “productive proximity” recommended by Carpenter can be attained today more readily than in the past with the aid of modern electronic devices, the bibliophile and his “room full of books” (culled from the stacks and preserved carefully for the occasional qualified scholar) are not outmoded. On the contrary, the last quarter of the twentieth century must, in library terms, be anticipated as the age of both manuscript and facsimile, of both fore-edge paintings and electronic displays, of some individuals browsing leisurely among books covering subjects of general interest and others doing detailed and virtually instantaneous searching, scanning and analysis via computer.

“What will libraries look like in the future?” The question is less perceptive than, “How may the library function be carried forward?” A single but important error about future library development has cropped up. The error is reflected in such a statement as: “The sort of library I envision doesn’t exist anywhere today, at least not in one place, although various aspects of it can be seen by viewing libraries separately in places where they are now developing.” The point is that in the future it will probably be less and less necessary to have all the pieces of a library program in one place so long as the program parts can be linked together in networks and the resources of each part deployed to support an over-all system. The library of the future is not wisely conceived as a place at all, but rather as a far-flung network composed of units of various sizes and types, each of which may perform similar as well as different functions, but all of which will be linked together electro-mechanically. Within the system at any one time will be vestiges of past service programs for both the bibliophile and the antiquarian; but there will also be avant-garde approaches to use of communications technology including tele-
facsimile and high-speed voice transmission aids capable of sending and receiving over a thousand words per minute; electronic carrels distinguished by their typewriter-like keyboards and connections to an on-line, time-sharing computer; audio jacks and sets of earphones; and individual TV display units capable of being augmented electronically through use of a light pen.

Less dramatic technically, but no less important to library planning for the future, will be adoption of new book storage techniques which employ more compact shelving arrangements. The minute neither the physical book nor its content must be placed in special arrangements on shelves to assist location, a library's capacity can be multiplied more than three times without difficulty. Also, more libraries will share common storage facilities in which may be placed the 15 to 20 percent of collections normally used infrequently. They will also establish cooperative units which will house materials used heavily, especially in situations where several institutions (for example, schools and colleges) find it convenient to save dollars by establishing a common facility which may very well have unique features no single agency can afford.

Cooperative planning for specialization in purchasing and provision of information services will increase (augmenting the long-established Farmington and P.L. 480 plans) as will the establishment of special centers for joint processing of books and other materials and for provision of bibliographic information. While it is hoped that the costs of cataloging—a major barrier to library development—will be alleviated by changes in Federal service programs and development of automated service, under the sponsorship of the Library of Congress, such results will not be achieved overnight. Indeed, the Library of Congress presently catalogs only about 50 percent of materials of interest to universities and, as yet, has provided no subject index to its Union Catalog. The high cost of processing library materials (often double the purchase price) will force increasing cooperation. Thus, assuming real bibliographic enterprise and initiative, there is hope that one day many larger libraries in the nation will be able to do entirely without card catalogs. First, however, there must be available author, title and subject indexes to appropriate accumulations covering the forty thousand book titles issued each year. Actually, this number of titles is rather slight when compared to the total number of publications issued annually in periodical, pamphlet or report form. Furthermore,

* This hope was expressed recently by Eric Moon, editor of Library Journal.
there is as yet no really adequate index, catalog or guide to newer media; it is hoped the new computerized edition of *Educational Media Index* scheduled for publication by McGraw-Hill in 1968 will fill this void.

Doubtless, those who manage the library function in the late 1970's and after will make extensive use of microtext forms—those presently available, some just on the horizon, and others still hardly more than dreamed of which appear, however, theoretically feasible and may reduce fantastically the physical volumes of space required for storing the world's knowledge. (Witness new grainless emulsions and what Verac has already done with 140 diameter reduction.) Micro-storage network service, such as that developing in St. Louis, will undoubtedly help overcome such typical library problems as mutilation, decay, space shortages, and excessive duplication. But the economics of converting older materials, not to mention of issuing new materials in the future, do not argue solely in terms of microforms or computer storage.

One comparatively recent study has suggested that books (even those printed on paper with high acid content), when kept in cold storage, can last more or less indefinitely. Paper deterioration was originally one of the chief reasons for converting to microfilm. Permanent papers are not in use and aerosol de-acidification is not practiced widely; nor do current binding methods help. Therefore, it may still be cheaper to build cold storage facilities for books than to pay even the present costs of converting to microform all materials on hand in a major library. Finally, libraries still do not have available a pocket reader in which one can insert high density micro-materials and render them truly readable.

Nor has the stage yet been reached when all library functions can be performed by new generations of computers operating dozens or hundreds of remote terminals in an on-line, time-sharing fashion. Furthermore, when such systems do become available, they will not stand up well alone. Hence, the library of the future, as the author sees it, will be composed of printed materials and computer storage units with a broad range of new media in between. And a guess is that for a long time to come most patrons will prefer hard copy over other forms for home reading or viewing.

It is true that library programs of the future will be affected in major ways by the concurrent instructional revolution, which is stimulated by and is itself stimulating radical changes in American edu-
cation and, in particular, is encouraging the individualization of teaching programs through use of programmed learning aids and computer-assisted study plans. Long before 1975, when more than 60,000,000 persons will be enrolled for credit in formal education courses (excluding private vocational study), and when it will cost the nation some sixty billions of dollars annually to support its formal education activities, libraries maintained by schools and colleges must become very different indeed. Publication of scientific and technical journals in non-print form (most likely on computer tape or disc pack), the contents of which will be reproduced only on demand, will also create a revolution of sorts and has already led to major legislative problems relating to the copyright law.

As suggested previously, the communications revolution now promises the technical means to deliver information, without any important time lag, from central storage areas to widely decentralized locations. And, in the wings, is a practical communications technology capable of transmitting information on a world-wide basis at a price which can be afforded. Within a decade, there will be in use commercial computer satellites which accommodate 42,000 voice-data channels or two dozen television channels in any desired combination.

As a consequence, many designs have been proposed for the shape of library buildings in the next decade. But what one finds most often in such designs is a local facility which is both a conventional library and a computing center, with modified audio-visual service areas sandwiched between the two. Library designers have not faced up to what could be a more desirable as well as much less expensive approach to regional or perhaps even national implementation of the library function. What is needed is the designing of information processing networks for which the usual local library unit could simply become a modest terminal. Perhaps work now being done by the special task forces of EDUCOM, a national organization concerned with such problems in behalf of member universities, will yield designs of this character. Certainly, the Educational Communication System designs (prepared for the National Association of Educational Broadcasters), which proposed three interconnected operational systems to share information in education by audio units, teletype, facsimile and slow-scan TV, also suggest possibilities. But the problem is cost. Estimates for starting even the simplest network operations in the first year exceed $500,000. EDUCOM proposals for EDUNET (a national information network service) call for initial expenditures of several millions of dollars to launch that effort.
Obstacles and Handicaps. The chief stumbling block on the road to realizing the type of library programs pictured is, of course, the lack of money. Even the new Federal bills proposed for current support of education and libraries are deficient when all the needs have been inventoried. Questions to be asked now are "How important does one consider the library problem in relationship to other things?" and "Are Americans willing to pay for solutions proposed?"

Many feel the health professions are likely to show the way to the library future more rapidly than will other groups because of their greater public prestige and the high premium normally placed on the study of medicine and related fields. Furthermore, in the health professions, innovations can be adopted universally in two years or less while the normal time lag in other fields may still be thirty years or longer. Libraries planned for the future—especially those intended to serve medicine, dentistry, public health and psychology—are already being so designed and arranged for accessibility * that, in addition to serving students and their families, specialists, technicians, nurses and others affiliated with a given institution, they will also make bibliographic, advisory and counselling services available to practitioners working in the field. As the argument runs, unless such help can be obtained it is the field practitioners and their patients who will suffer from the lack of needed information. Thus, the need is urgent and library programs designed to meet it cannot be passive. In a situation such as this, proper support of the library function quite literally becomes a matter of someone's life or death.

But lack of funds is not the only obstacle to sound development of the library function. A long list of other handicaps which slow development could be compiled. For instance, there has been continuing failure on the part of the U.S. Office of Education to establish and maintain a stable program for supporting new media research and demonstrations sponsored by libraries. In addition, located in schools and universities and in far too many research organizations are entrepreneurs who, as individuals, care little or nothing about educational benefits but engage in media service research as "grantsmanship" from which some material advantage and/or prestige may derive. Similarly, too many professional training programs are gadget-rather than problem-oriented. Funds granted to support both library and educational media institutes are too often used to pay (off) "consultants." Commercial pressures for legislation, government operation,

* Significant approaches to ideas in this area have been outlined in several papers, articles, and addresses by Dr. James Miller, principal scientist for EDUCOM.
and local purchase of instructional media have been stronger than ever in recent years and have yielded millions and millions of dollars annually in new profits to publishers and to A-V equipment manufacturers and distributors. However, they have yielded questionable payoffs toward real improvement of teaching and learning.

Foundation funding in the field of educational communications still tends to be based on potentials for high project visibility and research workers may encounter difficulty in publicizing unfavorable results and reporting findings accurately. The potentials of computer-assisted instruction, while rich, and indeed very promising, have been overrated and are currently leading too many school and college administrators down primrose paths at great expense and with little chance for turning back.

"Massaged" by the words of Marshall McLuhan, the current media mania among professional educators has been given far more attention and credence than careful study and assessment. And multimedia "pie in the sky" is a fantasy shared by too many audio-visual enthusiasts; that is, promises advanced for national communication networks involving satellite-relay transmission say nothing at all about the worth of that which eventually is to be transmitted. Educational communication jobs have been inflated in terms of both job descriptions and salaries far beyond any real importance they have or the abilities of those available to fill them.

But there is a new field emerging, behind all the rhetoric and reports of the more typical media service conventions attended by publishers, librarians, and other educational communications personnel. And, if present trends toward increasing Federal subsidies and the general spread of computer technology offer reliable evidence, it is long past time to acknowledge basic changes needed in the scene. What should be done? At least these things . . . .

**Basic Changes Needed.** First, new kinds of training should be offered. Taking cues from the elementary and secondary schools, and from junior colleges and some universities which are developing new instruction material or learning resource center programs which suggest future displacement of traditional libraries and other media service agencies in favor of more general communication service programs, professional education should be revised radically to recruit and train the new personnel needed to manage such agencies. In the author's opinion, it is safe to conclude that, with few if any exceptions, no present graduate school of library and/or information science is now
producing the kinds or number of personnel needed. Building on strong preparation in that synthesis of social sciences concerned with communication problems, including psychology, sociology, social psychology, anthropology, and linguistics, full undergraduate and graduate curricula aimed at producing several levels of personnel will be required as well as new, advanced study programs which will make possible student specialization in broad areas involving the communication arts and sciences, systems analysis and control, and the principles of administration, as well as afford opportunities for training specialists in media production arts and crafts. It is true that relevant programs are evolving in the library schools at the universities of Chicago and Pittsburgh, and at Drexel; and the audio-visual and educational communication training programs featured at, for example, Syracuse, Michigan State, Indiana, and the University of Southern California, to name a few, again promise opportunity for relevant study of computer-assisted information and instructional services. Also noted should be good work done during the many recent summer institutes supported by Federal assistance and conducted for librarians and educational media specialists.

As stated above, needed by the library profession as a whole is more adequate representation of new media interests within the American Library Association. Perhaps a new division should be requested. The Information Science and Automation Division does fill the void partially. But judging from fairly recent reports, it can be assumed that this unit will be absorbed for some time to come with the automation of library housekeeping and bibliographic routines (e.g., design of computer-based acquisition, circulation and cataloging systems) and will find it difficult to look toward newer horizons. In any case, ALA headquarters in Chicago badly need the services of one or more specialists who will study developments in the field, keep the profession well advised, and counsel with individuals and groups on ways to develop improved, local, and new media service arrangements consistent with future needs. At present, no one really knows who is doing what where in audio-visual library service.

At the Federal level, a "National Communication Service Agency" should be established, operating outside the framework of the present Federal Communications Commission and probably independent of the Office of Education. Such an agency is needed to foster development of both educational communications service and research programs and to assist the work of other organizations, whether public or pri-
vate, which are now or are likely in the future to become significant sources of production, distribution and/or storage of public communication resources. This agency also would assist in coordinating such agencies as the National Center for School and College Television and the new public television network; and in evaluating educational technology as developed under auspices of the Educational Products Information Exchange (EPIE). Agency personnel would also be expected to raise an effective voice on matters relating to educational communication services, including the many copyright dilemmas. Such an agency could appropriately be asked to encourage international co-production and exchange of ideas and materials and to cooperate in professional studies of education aimed at developing national curricular approaches with implications for media use. It would keep a sharp eye on the growing number of private mergers of publishing and electronic firms and their market operations and, of special importance, such an agency could provide an effective channel for implementation of recommendations to be proposed by the President's Commission on Library Resources which is to submit a report in a very few months.

In conclusion, to summarize the chief points which have been expressed: what will be important tomorrow is the library function, not the library as a physical institution. In contemplating the library function, the concepts of media will give way to a greater concern for knowledge as such—its assessment, storage, retrieval and rapid transmission. In the future, the traditional rejection by librarians of newer media will no longer have meaning and will disappear as a basis for intra-professional controversy. New training programs must be mounted to equip library personnel to manage new agencies to perform redefined library functions. And changes taking place in the field should be reflected organizationally within such professional bodies as the American Library Association. At the Federal—and perhaps even international—levels there is needed a new approach to developing and coordinating educational communication and information services. For many years librarians have worried about professional service responsibilities for providing audio-visual materials and other "new" media. Now, however, such concerns are antique and are being replaced by the more meaningful questions which relate to costs and the practical problems of handling ideas and information regardless of form. Answers given to these questions imply development of new communication and information service agencies which
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will perform the library functions, but which may well be managed as institutions considerably different from what we know today as libraries.

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C. WALTER STONE


ADDITIONAL REFERENCES


New Library Materials and Technology for Instruction and Research

PAUL WENDT

A careful review of the research literature published since 1960 on using modern communications technology for library instruction, will disclose a number of relevant studies which may be classed under two headings: (1) those relating to formal course work in library science; and (2) those which cover informal instruction in the use of libraries. A majority of the studies reported concern informal instruction.

The first part of this article will show that there has been a growing amount of experimentation on the use of both new and traditional instructional aids in teaching library science, for example, color slides, new programmed learning materials, closed-circuit and broadcast television, tape recordings, overhead transparencies, and single concept films. The studies reported in later sections of the article suggest that experimentation completed in informal or undergraduate settings has not been matched in volume or quality by research pertaining to library science instruction as conducted on the graduate level. The author hopes all projects cited may help point the way to fruitful new research and experimentation in the field.

Formal Course Work in Library Science. One of the more significant projects involving controlled experimentation in a formal course in school reference materials is that reported by Allen.¹ Subjects participating in this study, juniors and seniors in the Instructional Materials Department at Southern Illinois University, were divided into the usual experimental and control groups. Within the time period of two hours and twenty minutes (held constant), twenty-nine separate reference items were demonstrated to and studied by each group although actual materials were not shown to either. A lecture, which

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used 2" x 2" slides to give views of each whole volume, its title page, table of contents, typical entries, and some special features, was presented to the experimental group. The same lesson, without slides, was presented to the control group.

Scores obtained before and after the experiment were based on School and College Ability Test (SCAT) performance, grade point averages, and on pre-test and post-test results. Both tests called for answers to thirty-one matching questions. The two groups did not differ significantly in SCAT scores, grade point average, or in pre-test results. A Wheery-Doolittle regression analysis, computed on three scores, indicated that grade point average was the only predictor of success on the post-test. However, a simple variance t-test (two-tailed) of gain scores showed highly significant differences in favor of the experimental group at the .001 level of confidence. In other words, results of using slides to illustrate reference works seemed to indicate improved instruction at Southern Illinois when compared with results of the same instruction without slides (or use of actual reference materials). Furthermore, the use of slides brought group scores closer together on the post-test since even slower students tended to catch up with brighter colleagues.

In order to determine those factors in the slide presentation which contributed most to results noted, another group of thirty students was given both types of instruction and asked to indicate which method was better and why. All thirty students replied that they preferred the slide lecture because: (1) the slide material helped them to retain an image of actual physical appearance and size; (2) the arrangement of materials was more easily visualized and understood; (3) contents could be enlarged for individual instruction within the group; (4) the slides afforded a common denominator of experience which tended to equalize previous knowledge of particular sources; (5) answers could be explained visually as well as verbally; (6) the slide-lecture combination seemed to bring out the "better" qualities of each approach; (7) it was easier to take notes since attention was focused sharply.

Allen concluded that the slide-lecture method of instruction has numerous possibilities for use in teaching library science since the slides needed are inexpensive and can be used to show almost any type of material normally presented in a classroom, and since the time required for effective instruction can be reduced.

However, it might well be asked, "When and why would a compe-
tent instructor teach the use of reference materials without introducing actual volumes?" Using Allen's slides in place of actual materials could solve the problems raised by trying to offer extension courses in towns where the requisite volumes are not available from local libraries or where the cost of acquiring works needed for instructional purposes would be prohibitive. Furthermore, pressures created by the increasing Federal support of library programs demand accelerated programs for teaching library fundamentals, especially to librarians serving schools. Allen's experiment with slides suggests a convenient way of meeting this need, even for more isolated schools which have not acquired many basic materials.

Before moving on to discuss several studies of library orientation programs, perhaps a brief mention should be made of Penland's work on benefits to be gained from intensive student analysis of programmed instruction. Results obtained from his research led Penland to believe that many students may profit substantially from detailed analysis of objectives and other features of programmed instruction.

Informal Orientation to the Library. Regarding informal student orientation to the use of libraries and library materials, several surveys yield information concerning use of both new and traditional media. For instance, Power has summarized for the International Association of Technical University Libraries a number of surveys conducted at university libraries in the United States and has reported the kinds and extent of instruction given in each case and the results of evaluation.

Josey sent a questionnaire to five hundred college and university library administrators representing many different kinds of institutions and obtained a 79 percent response (which is unusually high). Sixty percent of those responding indicated that their library staffs were not responsible for a course; 45 percent replied that a member of the library staff gave a lecture on the use of the library during an orientation week; 56 percent said that comparable instruction was presented to English classes. Josey concluded that (1) librarians are "alienated" from orientation instruction, (2) orientation week is disappearing, and (3) tours of the library are falling into disfavor. He also felt that too much instruction about the library was being given at a time when college freshmen were not able to make any really functional use of information gained from such activities.

In another survey concerning the value of library orientation courses, Wojcik questioned some thirty schools about the desirability of de-
veloping and offering a course which could be required nationally; most respondents favored two to three hours of such an orientation program. Hartz emphasized the need for new approaches in freshman library orientation. Syracuse University surveyed the literature and held conferences with library and academic staffs at the universities of Buffalo, Cornell, Rochester, and Syracuse. Hilker completed a study which revealed very little relationship between academic classes and proficiency in library skills but which did indicate "a small positive relationship between academic success and knowledge about library usage gained chiefly from pre-college experience."

Pritchard sent a library handbook containing a self-test to all "pre-freshmen"; 78 percent read it and most "passed" the test. Gottinger used one hundred 2" x 2" colored slides with a dubbed-in commentary on tape to teach some 1,400 freshmen about main entry catalog cards; the experiment will be assessed at some time in the future. San Antonio College received a grant to experiment with teaching machines in instructing pupils on how to use the library. Freshmen orientation programs involving some degree of novelty but not using newer media were reported by Matthews, Taylor, Alston, and Knapp. However, a number of fairly recent studies recommend more innovation.

For example, Gerlach and Farnbach report the use of 8 mm. single-concept films for self-instruction. Gee and Reed urge use of more programmed instruction in the formal teaching of library science. The use of programmed instruction for in-service training has been recommended strongly by Hines. A flow chart of library searching techniques, described by Swenson, is suggested for library orientation. And, in reporting a somewhat traditional program of library instruction, Bartlett mentioned the use of televised lectures. Clinch and Dance suggest the use of more closed-circuit television for many purposes in the library. In fact, television seems to be the one form of communications technology which has won recognition in the field of library orientation.

Moffett reports that teaching an orientation course via television is just as effective as offering traditional lectures. Brown has reported that, while an attempt to represent a library tour by showing slides and movies to 1,500 students failed, closed-circuit television lectures on the history of libraries, the Dewey Decimal and Library of Congress classification systems, reference books and periodicals, and on research problems were very successful. Brown did, however,
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note two limitations of television—(1) the lack of interaction with students, and (2) the fact that better students could pass the course “with flying colors” without ever having entered the library. Awareness of the dangers of pure verbalization without performance testing should be noted since most instruction in library science insists upon performance.

A well-designed experiment has been reported by Hertel in which the principal variable was the amount of televised instruction (closed-circuit) given during four lessons. Unfortunately, the fact that some students were repeating the course contaminated the data and made valid statistical analysis impossible. Even so, the author concludes, “No one . . . can fail to be impressed by the potentialities which television offers. . . .” Holley and Oram reported on a preliminary television broadcast (which they felt did as much good as an organized library tour) and on a longer broadcast involving 181 slides. They felt the latter program was worth the effort and served their purpose as well as tours; however, statistical data concerning results were not reported. Holley and Oram also stated that “The same amount of information is communicated with the expenditure of much less effort” in spite of technical difficulties. It might be noted in passing that, as a result of their first program, the experimenters decided a narrator should not be visible on the screen. The reports offered by Holley and Oram contain helpful advice for anyone attempting use of this medium for orientation.

Wendt and Rust, and McCoy have reported on the use of programmed instructional techniques. In a series of thirteen controlled experiments, four units of such instruction were given including items on use of the card catalog, shelving, encyclopedias and dictionaries, periodicals and indexes. Not only were new branching techniques of programming employed, but all frames produced included a Kodachrome picture as well as printed information. In completing a program, the learner was required to stop the program at various points and perform actions which would simulate required terminal behavior. At several points in the program on the card catalog the learner was instructed to locate a particular card in a card catalog tray on a table in front of him. Similar assignments required him to locate books on shelves and find items in dictionaries, encyclopedias, and indexes. Most experimental materials utilized such programming techniques as by-passes, remedial circuits, and diagnostic questions.

In the initial experiment, a group of thirty freshmen taught by the
traditional lecture system were compared with thirty freshmen taught by a teaching machine which displayed $2'' \times 2''$ slide images projected on to a screen. The answers given to multiple choice questions determined sequence and which materials the machine would show.

Results obtained from this experiment indicate that machine instruction may be just as effective as a lecture, even though lectures can be improved by adding slide presentations. Furthermore, when machines are used, each student may proceed at his own pace. In the study reported, slower students were found to take as long as forty minutes to complete each program, whereas, with use of a “by-pass” sequence, brighter and more experienced students could finish the same program in less than ten minutes.

In still another experiment with programmed instruction, thirty students completed the work, but Kodachrome pictures were eliminated and their content translated into print. While no difference was found between results obtained by the “pictorial” group and the “print-only” group as measured by the paper-and-pencil criterion post-test, a highly significant difference was found which favored the “pictorial” group when a special performance test was administered. This test asked students to carry out specific assignments by working in the library with actual materials. While completing his assignment, each student was graded by an observer who used a structured rating scale. Results of the experiment suggest that, wherever possible, instruction in library science should be tested by actual performance rather than paper-and-pencil tests.

A final experiment in the series eliminated performance frames from the programs. There was no difference between the “no performance frames” group and the group taking the standard programs including performance frames as measured by paper-and-pencil tests but, again, there was a highly significant difference when actual performance was measured.

One general conclusion which can be drawn from the Wendt, Rust and McCoy experiments is that well-designed units of programmed instruction which involve simulation of desired terminal behaviors by means of pictorial instruction and occasional completion of performance assignments, can teach without reliance upon a human instructor as well as or more effectively than can traditional orientation lectures which involve valuable staff time. In addition, simulation of terminal behavior via pictorial performance frames produces significant results in terminal behavior but non-significant results in paper-and-pencil tests.
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A greater willingness to experiment with new media seems evident from informal experiments and demonstrations conducted at the elementary and secondary school levels. In teaching children how to use school libraries, teachers and administrators have employed closed-circuit and broadcast TV, tape recordings, and the overhead projector. Steinrod has reported use of closed-circuit television to teach all fifth and sixth graders in one school how to use a card catalog. A post-test involving a sample library card resulted in scores ranging from 90 to 100 percent correct. Use of broadcast television has been reported by Egan whose subjective evaluation was that the series was "stimulating and of real value." Ligda reported on a tape recording written, produced, and presented by the children themselves. During presentation of the tape, cartoons were shown; evaluation was subjective. Bruner used programmed learning to motivate children seeking occupational information.

A controlled experiment was conducted by Siefker who wrote a linear program on the card catalog for the upper elementary and junior high school levels. She reported that accuracy on the pre-test ranged from 25 to 63 percent and on the post-test from 85 to 96 percent, which illustrated not only the efficacy of the program but also the tendency of programmed instruction to make groups of learners more uniform. A seventh-grade student's very successful performance on a real card catalog, although he had never before seen one, illustrated the much-to-be-desired values of performance testing in library instruction.

Use of the overhead projector in teaching library skills has been reported by Landman, Johnson, and Schwartz and Schofield. Landman reported that specific areas of a library handbook were illustrated by transparencies projected with an overhead projector. Facsimiles of circulation cards and date-due slips made it possible to illustrate for an entire class actual work involved in filling out these forms. The experimenter noted improved interest. Johnson reported use of lectures employing transparencies which resulted in a high level of learning; but he reported no objective testing. Schwartz and Schofield reported a demonstration of ready-made transparencies.

The Need for Research. It is unfortunate that the relatively large number of studies and experiments with new media and methods of instruction for library orientation have not been matched by an equal research effort concerned with the formal teaching of library science, especially on the graduate level. There are several reasons for this deficiency.
Although the most important teaching of library science probably occurs in recognized graduate library schools, most research in teaching methods is confined to lower academic levels. One reason is that college administrators and teachers are always looking for better ways to handle the flood of students now entering freshman and sophomore classes. However, the steadily increasing enrollment in colleges and universities and the inevitable demand for more qualified librarians presage larger graduate classes in library science and a corresponding need for more efficient teaching methods. Furthermore, although bibliographic research is a prime area of study in library science, it has little application to teaching in areas that require experimental research.

There is a need for controlled and objective experimentation in the teaching of library science. Any science can be defined as “a body of knowledge organized by laws.” Library science conforms to this definition and its teaching does not differ in any important way from the teaching of other sciences. It should, therefore, be possible to adapt to library science new teaching methods developed in other sciences, for example, the Postlethwaite carrel system of self-instructional techniques as developed at Purdue.

In addition, in order to undertake controlled experimentation it must be possible to have flexible conditions so that experimental situations can be created. The teaching of library science can be just as flexible in this regard as can any other science. It is possible to set up controlled and experimental sections of students in the same course, one of which receives the usual type of instruction while the other receives an experimental version.

Controlled experimentation needs one important element: a valid and reliable criterion test, the basis on which experiments must rest. Without a good criterion test, the experimenter never can tell whether he has created a difference. The validity of the test can be established by several methods to determine whether the test really measures what it is supposed to measure. It must be reliable enough to be used repeatedly to obtain approximately the same results. A criterion test which has been standardized nationally to develop dependable norms is especially desirable in experimentation. In many fields of achievement, notably on the secondary school level, many such standardized tests are available. Unfortunately, this cannot be said of library science, but, inasmuch as library science is a body of knowledge organized by principles, standardized testing is patently feasible.
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Library science, as taught in most schools, represents a fertile field for experimentation since there is a tendency to teach by requiring simulation of desired terminal behaviors. Library science courses normally include assignments which project examples or simulations of skills desired. For example, cataloging is taught by having students actually catalog books (or xeroxed essentials from a book). To the instructor in library science this seems only common sense; to a student of programmed instruction, however, such practicality is an achievement since one attribute of programmed instruction is the emphasis placed upon desired terminal behavior. A teacher, before writing programmed instructions, must specify in great detail what he wants the learner to be able to do when instruction has been completed. In other social sciences this often is interpreted to mean merely the answering of a paper-and-pencil test because, in most cases, it is impossible to test actual behavior. For example, the teacher of a course which involves learning value judgments can seldom if ever be sure that the learner, after leaving the course, will render sound value judgments. In library science, there are many instances in which actual terminal behavior can be tested by the instructor in the field or a simulated field situation. Thus, library science courses have a strong behavioral criterion for measuring experimentation.

Since control is essential in order to make valid generalizations about the results of experiments, it is hoped that controlled experimental approaches will become common in the teaching of library science. General surveys, although useful and necessary, merely reveal a status quo which may or may not be deplorable. Demonstrations are not research, and the Elementary and Secondary Education Act makes a sharp distinction between them. Title III provides funds for demonstration, while Title IV supports research and its dissemination. Inevitably, the "library college" movement will involve librarians in many types of controlled experimentation. The present proliferation of devices to provide automated, programmed instruction (without an instructor present) implies that most colleges will see rapid growth in the number of study carrels on campus. At institutions such as Oklahoma Christian College, whole floors of the campus library contain several hundred student carrels. Language laboratories, which already provide such individualized study space, are being followed rapidly by such devices as the talking typewriter, dial-access retrieval systems and, most important, computer-assisted instructional aids.

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Role of the Computer. Computer-assisted instruction provides the ultimate in individualized teaching. A computer will store branching forms of programmed instruction which can vary the content presented depending upon student answers to multiple-choice diagnostic questions placed in the program. Provision can be made both for fast and slow learners and for fast and slow readers; for individuals who need a higher percentage of pictorial instruction; for students from different socioeconomic levels; and to satisfy needs of other groups depending only upon the creativity of a program writer. In the so-called “adaptive” mode of computer-assisted instruction the computer can adjust to the student in two additional ways. First, it can keep records of student failure or success and adjust programs accordingly without student knowledge. Second, such previous information about a student as IQ and grade point averages can be stored under the student’s own name in the computer “memory” from which a learner’s whole program of instruction may then be planned.

It should also be mentioned that the same computer which is used in computer-assisted instruction can also keep records of student performance and, in the end, provide researchers with full sets of statistics. In fact, the statistical results of such experiments can be made available to researchers within minutes of the time the last subject leaves a carrel.

Computer-assisted instruction implies the eventual presence not only of a typewriter controlled by both student and computer for communication purposes, but also of a cathode ray tube display to show both printed and graphic materials, a projection screen to show colored pictures, and a speaker or earphones for audio presentation. Thus, stimuli impinging on a learner may be printed, graphic, pictorial, or audio. Eventually the use of motion pictures via computer—a medium offering tremendous possibilities for automated instruction—will also be possible. By the end of 1967, forty American universities will be using computers for instruction. Present models can handle as many as thirty-two learners simultaneously, all working with different programs.

It is inconceivable that library science should stand idle while other areas of study benefit from use of the computer for instruction. The “library college” idea envisions many automated carrels linked to computers placed within the library itself and not in some separate campus agency divorced from libraries. Thus, since instructors in library science may well find many such automated carrels situated
near their classrooms, controlled experimentation in using them is virtually inevitable.

Research completed to date has shown that automated carrels are especially useful in teaching factual information and skills. Library science has its full share of these elements, and there are many areas of controlled experimentation open to library science teachers. For instance, at Southern Illinois University, research completed in the past six years with simulated computer-assisted instruction has demonstrated that one vital area for research concerns the relationship between pictures and words. Apparently this relationship follows a continuum. At one end is the book with no illustrations. Next come those books in which pictures are "fillers," i.e., materials which relieve the sameness of the printed page. For example, pictures reproduced in *Time* magazine do not contribute much to the text but are used principally to draw attention to the text. Picture books written for children afford good examples of both text and pictures having equal prominence with each contributing its share to the development of a story. The captions of newspaper photographs are subordinated to the pictures, and the words are usually confined to a few short sentences. In filmsstrips, the pictures predominate and the number of words accompanying each frame is cut to a minimum.

Further down this continuum of "cooperation" between pictures and words we find that many paintings, especially the non-representational, have titles which are quite meaningless and do not help interpretation; they are mere labels. Finally, there are pictures which need no words, for example, the series of five hundred photographs published under the title, *Family of Man*, by the Museum of Modern Art in New York City. These pictures, culled from many thousands, show human beings around the world arranged in very familiar poses and they literally speak for themselves about the brotherhood of man.

Although in the past the profession of librarianship has been concerned principally with the printed word, librarians should also be involved in determining which elements in pictures provide the most effective communication. This should not be left only to photographers since the same analytical techniques employed so brilliantly in linguistics could be used to determine the communicable elements of pictures. The growing interest of professional librarians in storage and retrieval of pictorial content calls for research into the instructional value of pictures, an area most appropriate to library science. Controlled experimentation would be difficult but not impossible; such
research has not been done in the past because of lack of interest and lack of competent researchers.

Since multi-media approaches can now be used for auto-instruction in a carrel, the interrelationships of media provide another fascinating field for study. One good hypothesis might be that a student sitting alone in a carrel would prefer an instructor's voice teaching him via audio system more than cold print or visuals. This hypothesis could be tested easily by programming several units in library science and presenting them in two or three ways to selected classes.

To sum up, many new methods and media useful for instruction and research—notably, computer-assisted instruction—should be employed in library science, at least experimentally, to help handle increasing numbers of students, to maximize amounts of instructional information which can be introduced and learned in a short time, and to simulate desired terminal behavior once clear educational goals have been determined. It is hoped those responsible for improving education for both library use and management will not fail to harness the new communications technologies to these ends.

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ADDITIONAL REFERENCES


Organization and Operation of School Library Materials Centers

JEAN E. LOWRIE

The concept of the school library as an enriched instructional materials center has been accepted generally by librarians serving today's elementary and secondary school programs. The abundance of print and non-print material now flowing into schools as a result (primarily) of recent Federal legislation, such as the National Defense Education Act (NDEA) and Elementary and Secondary Education Act (ESEA), has made it imperative that revised patterns of library organization and accessibility be established or expanded in all school systems.

A statement published recently by the Knapp School Libraries Project defines instructional materials as "all types . . . used in intellectual pursuits by teachers and students" and reaffirms the principle that a "strong central library . . . is the keystone of quality education in each school, regardless of size or organization of the school. From this central library many points of access to instructional resources can be provided through mobility of library staff and of library materials."¹

The materials-centered school library is intended to locate, organize and disseminate all media in the way which will best serve the school community, the community being defined to include teachers, supervisors and administrators as well as students. The key word is "serve." No center can justify its existence if it is merely a storehouse for equipment, bound periodicals or other media. The library must serve as a teaching instrument within the over-all framework of the school. Librarians must keep constantly aware of innovations in school organization, curricular trends, and instructional techniques. Inevitably,

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these affect collections development, design of facilities for study, and use of materials, as well as breadth of services offered.

One particular aspect of the effective library resources center being emphasized today is total involvement of faculty in the planning of library programs. Again, quoting from the Knapp statement, "Opportunities for in-service growth in teacher expectations, knowledge, and utilization of the library come through involvement of teachers in planning the library program. . . . In-service education should provide further opportunity for this participation. . . ."1

Teachers, supported by a strong library staff, can assume major responsibility for: (1) library skills instruction integrated with teaching of study skills and subject disciplines; (2) optimum utilization of library resources in large-group, small-group, and individual learning; and (3) development of student competence in reference and research skills.

This obviously involves defining the individual and shared responsibilities of both teachers and librarians, providing in-service training for improved use of materials, scheduling library use flexibly, analyzing curricula and evaluating program effectiveness. These facets of library program planning all relate to operational aspects of a materials center. More basic relationships will become apparent as individual school patterns of organization are presented.

A review of the professional literature published in the last decade—educational, library and audio-visual—reveals clearly a crystallization of the concept that integrated use of all media, print and non-print, should be part of the total instructional aim throughout an entire school system.

Dane states, "The school library will have, not only books and magazines and pamphlets, but films and recordings and study print and museum objects and film-strips and overhead transparencies—and maps and globes and charts and realia."2 Indeed, the new ways of recording information should all be examined for possible inclusion in the library resource center. The joining in one center of print with non-print materials for learning enrichment is supported strongly by Darling;3 Evans4 and Nicholsen;5 Lohrer’s study emphasized that schools and libraries are experimenting in the design and organization of all resources and media technology to enhance effective communication, to stimulate individual learning, and to assist both students and teachers.

The need for instructional materials in the non-graded or continuous
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progress school has been emphasized by Berry.7 In situations where students progress at their own rates, placing individual study carrels (where students keep books, progress charts, and other study equipment) adjacent to the materials center becomes important. The opportunity to have “different materials for different students at different times” available from a centralized location is basic to the non-graded plan, and students must be able to check out A-V as well as printed materials to take home.

A rich variety of materials, spacious facilities, and adequate personnel is imperative in the development of any “total” educational program. Kamatos and Jarvis,8 two supervising principals, have expressed a view that the main features of an adequate materials center include suitable facilities, sufficient materials and a trained staff. Their concept of service is implemented through centralizing materials, cataloging, and the technical processing of all aids and materials. The authors emphasize that when a teacher is able to coordinate lesson plans and instructional activities with all resource information at hand, she is better able to focus attention on the subtleties of teaching. Knade9 emphasizes this concept as basic in today’s elementary school program, and Mann10 comments on it from a secondary school point of view. A publication issued by the Michigan Instructional Materials Committee11 not only supports the concept of a total materials approach, but also presents descriptions and drawings of possible housing and suggests the staff need for adequate professional education. Whitenack12 points out that there should be no competition among instructional materials since each type may serve a specific educational purpose. She also comments on the competencies needed by instructional materials specialists and emphasizes the need for study of administration and management as well as the educational process and library science.

Emerging patterns of library organization point up the recent development of both school “system” centers and individual “building” centers. It appears that a “system” center’s primary responsibility is to supplement the “building” centers. Normally, it houses media too expensive for wide distribution; it often manages a centralized technical processing service; it generally gives maintenance service for equipment and offers assistance in production of teaching and study materials. The building center on the other hand is geared to serve more direct and immediate classroom needs. It supports curriculum enrichment, stimulates individual intellectual curiosity, and satisfies
leisure-time reading needs. Corbacho and Hall highlight this trend in their studies. It is also evident in a number of the proposals, submitted under Title III of the Elementary and Secondary Education Act, in which regional instructional materials centers have been planned to include centralized processing and ordering, materials which cannot be duplicated in the small surrounding schools, computer services, production centers, and other services pertinent to the instructional materials needs of the schools in the specific area. Staffs incorporate librarians, audio-visual specialists, technicians, and clerical assistants in order to supplement personnel needs in the individual schools.

One question which seems to be confronting the secondary school in particular is that of decentralizing materials centers. In this case, resource centers may appear in strategic locations in the schools, while the library becomes a central reference area housing many materials and often duplicating those in the outlying centers. In this situation the problems caused by a need for additional staff, duplication of cataloging effort and extra equipment must be faced. If such a center exists it is apparent that flexibility of collections and provision for interchange of materials become imperative. In many instances this is an enriching way to serve an expanding school population or make use of space which has been remodeled. Whatever forces may demand such organization—facilities, curriculum experimentation, student enrollment—administrators indicate that it must be planned very carefully so that the student will be assisted, not restricted, in other words, he should not be tied to one center, but must have access to the materials available in any center at any time.

The Knapp School Libraries Project has had a specific impact on growing acceptance of the theory that a good school library must be organized as an instructional materials center if it is to be a true learning resource. Indeed, the role played by enriched materials is an exceedingly important aspect of the demonstration schools. Excellent school libraries do have an impact on improving class instruction and do make a difference in children’s learning. Gaver states, “We have also learned a corollary lesson—that more books and film-strips and more librarians alone don’t bring this about. The real key is in the program of service which is brought to bear on the learning activities of the children by the library. Furthermore, the in-service programs which are carried out by the librarian and by the college field worker, for teachers, in the use of instructional materials are an
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exceedingly important part of the effectiveness of the program in each school.” The director of the Knapp Project writes:

One thing which I think was most important from the beginning of the Knapp School Libraries Project was the fact that we had school libraries so specifically in our title. We certainly gave every advantage to the selection of schools where the instructional materials center had been begun, but only when it was under the direction of a qualified librarian.

To get to the probably more important point about whether our schools really developed as instructional materials centers, I think that there is no question that they did so. They customarily have outstripped the other schools in their district in this kind of development. In every instance they had made at least a beginning in being true instructional materials centers, but with the emphasis we placed both in terms of budget and philosophy on further development of this concept, they proceeded apace. In some instances, this was most interesting, especially when the concept of combined coordination of instructional materials programs at the district level had not begun to take effect. I am thinking here especially of Baltimore, where a director of library services and a director of audio-visual services work somewhat separately from each other, but where both have been most interested and encouraging for the school to combine all elements into its program. The fact that in Phase I of the Project we had no funds for real change of physical facilities meant that we did not really have an opportunity to develop a complete instructional materials center as it would have been planned if begun ideally.

Even at the other schools we were working within time and budget and building limitations which precluded complete revision of the library into a beautifully planned facility for instructional materials. I think that there has been an advantage in this in that visitors to the schools have seen how facilities can be adapted and adopted to an expanded program. The recent influx of federal funds has meant that school districts have typically more materials and equipment than they can adequately house or sometimes even adequately program. Their experience in visits to Project schools would certainly mean that they have seen how adaptation can take place even in older facilities. There is no doubt that in some respect visitors to our Project schools have gone even beyond the programs that they have seen in operation there. In some instances, growth or change of attitude is even notable between the time that a team presented its application to visit a Project school and the time that it presented its report of that visit. Such comments as the note that
elementary school libraries were just being started in a district that wished to send a team to a Project school are followed by reports of the visit which cite the fact that the group now sees the benefit of an instructional materials center approach; so it would seem to indicate that they obtained a much broader view of [the] program. The reports which we received from visitors a year after their visit are of course better indications of what actually happened. We have deliberately kept these forms short and have encouraged or at least accepted fairly brief statements of development. The fact that in the year-later reports from the Phase I schools' visitors the number one priority in personnel (clerical) and the number two priority or evidence of increase or change of program was for professional personnel, again seems to indicate that it was a program concept that people were taking away with them.

I do want to point out that the impact of federal funds and the increased strengths of many state departments of education in the past two or three years have had a tremendous impact on visitors to our Project schools and on the Project schools themselves. It is entirely possible that many of the improvements would have taken place regardless of the Knapp Project. It is certainly true that we cannot draw single lines from the Knapp Project to spectacular increases, yet every day's mail with its request for information about establishing demonstration centers, developing the IMC concept, etc., etc., seems to indicate that we must have pointed the way for a number of people.17

Demonstration centers have also developed from recent Federal legislation, many modeled on the Knapp Project ideas. The impact of this concept of school libraries, which has been explored by school librarians and supported by far-thinking school administrators since the 1940's, is immeasurable. There is evidence that today's school libraries are all moving in this direction albeit with varying tempos and patterns.

In an effort to obtain some information on organizational trends as well as philosophical concepts concerning service and organization of the school library as an instructional materials center (IMC), the writer invited state school library supervisors to submit the names of one or two elementary and secondary school libraries having programs which truly exemplified the enriched resource centers. Their replies provided a national random sampling. Several of the supervisors who replied reported that school libraries in their states were definitely moving in the direction of becoming learning resource centers but could not be categorized as true instructional materials centers.
Organization and Operation of School Library Materials Centers

Tables 1 and 2 indicate the current technical and physical aspects of IMC organizational patterns:

### TABLE 1
CURRENT TECHNICAL ASPECTS OF IMC ORGANIZATIONAL PATTERNS

<table>
<thead>
<tr>
<th>Technical Processes</th>
<th>Elementary</th>
<th></th>
<th>Secondary</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
<td>No (%)</td>
<td>Yes (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td>Centralized ordering</td>
<td>80%</td>
<td>20%</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Centralized processing</td>
<td>53%</td>
<td>47%</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Centralized cataloging</td>
<td>60%</td>
<td>40%</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>Centralized print materials</td>
<td>60%</td>
<td>40%</td>
<td>54%</td>
<td>31%</td>
</tr>
<tr>
<td>Centralized non-print materials</td>
<td>33%</td>
<td>67%</td>
<td>15%</td>
<td>69%</td>
</tr>
<tr>
<td>Commercial cataloging</td>
<td>20%</td>
<td>80%</td>
<td>8%</td>
<td>92%</td>
</tr>
</tbody>
</table>

From this table, it would appear that the elementary school library programs, which, incidentally, are more recent developments, are doing a better job of organizing materials through centralized services. It is also evident that there is still a lag in the cataloging of non-print materials, a situation which needs to be remedied quickly if full service is to be rendered.

In the question pertaining to selection, all elementary and secondary personnel indicated that they are responsible for selection of both print and non-print materials. Furthermore, in every situation teachers were involved in all media selection.

### TABLE 2
CURRENT PHYSICAL ASPECTS OF IMC ORGANIZATIONAL PATTERNS

<table>
<thead>
<tr>
<th>Physical Facilities</th>
<th>Elementary</th>
<th></th>
<th>Secondary</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
<td>No (%)</td>
<td>Yes (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td>Conference areas for students</td>
<td>67%</td>
<td>33%</td>
<td>77%</td>
<td>23%</td>
</tr>
<tr>
<td>Individual study areas or carrels</td>
<td>60%</td>
<td>40%</td>
<td>77%</td>
<td>23%</td>
</tr>
<tr>
<td>Listening and viewing facilities</td>
<td>87%</td>
<td>13%</td>
<td>92%</td>
<td>8%</td>
</tr>
<tr>
<td>for students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening and viewing facilities</td>
<td>87%</td>
<td>13%</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>for teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production of materials area</td>
<td>67%</td>
<td>33%</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>Subject resource centers in main</td>
<td>73%</td>
<td>20%</td>
<td>54%</td>
<td>46%</td>
</tr>
<tr>
<td>library</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject resource centers in parts of</td>
<td>33%</td>
<td>67%</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>the school</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large reading room</td>
<td>100%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Separate A-V center</td>
<td>27%</td>
<td>67%</td>
<td>23%</td>
<td>69%</td>
</tr>
</tbody>
</table>

It is apparent that a variety of study and work facilities is an integral part of the well-equipped IMC. Undoubtedly it facilitates smoother operation and broader service. It is interesting to note that
neither elementary nor secondary school libraries showed any strong tendency to develop subject resource centers in other parts of the school. Although this was expected in the elementary area, professional conversations indicate that departmentalized libraries were increasing in number in secondary schools. This is a trend which may develop with the apparent emphasis on employment of subject specialists. If so, it will require some new organizational patterns.

Professional and clerical staff needs which inevitably affect library operation are as crucial as ever. In the elementary schools the professional librarians average 1.2 per school; in the secondary, there are 1.7 per school, with the majority having two. However, clerical and technical assistance averaged .6 in the elementary and 1.5 in the secondary centers. In addition, several secondary schools indicated a sub-professional librarian on the staff. Of the elementary school library supervisors replying, 87 percent indicated they served as coordinators of the entire IMC; 33 percent reported that there was an A-V coordinator separate from the center staff. Among secondary school library supervisors, 77 percent reported that the head librarian served as coordinator of the entire IMC, and 31 percent stated that there was an A-V coordinator apart from the center staff.

A survey of the types of materials available included all the usual print and non-print media, plus many special collections such as sets of models, pictures, mock-ups, or scientific equipment. Only about 20 percent of the centers included textbooks. On the other hand, 87 percent of the elementary and 92 percent of the secondary school libraries maintained professional collections for teachers.

One major organizational problem faced by an IMC is the scheduling of classes, small groups, and individual students. Flexible scheduling has long been advocated, but even today many libraries find it difficult to break the old lock-step pattern of "30 minutes per class once a week." In part, this is due to lack of space, in part to traditional school programs and, alas, to librarians who are afraid to experiment.

Samples of Elementary School Replies. A few examples of flexible scheduling as reported by elementary schools follow:

1. Classes are seldom scheduled into the library. No class ever completely occupies the library. There is a self-checkout system and individuals and small groups are always free to go in and out. For library instruction, large group instruction is held outside the library and small groups come to the library to do exercises to increase their skill at using the library.
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(2) We operate two programs simultaneously (Reading Room, Conference Room). Each class is scheduled into the Reading Room twice a week for relatively long periods, for reading, reference work, browsing, borrowing (these activities are teacher-directed). A combination of scheduled and sign-up activities goes on in the conference room (teaching of library skills, story hours, projection of all types of visuals). The reading room features continuous circulation of books from 7:30 a.m. to 4:30 p.m., and two or more classes use it at a time. Individual students and small groups use it without previous arrangement; no passes are used. Teachers are finding many ways to use the library as part of their Social Studies, Science, Reading, etc., instruction.

(3) We have no library schedules. Each teaching area opens into the center. Teachers can supervise students in the library from the room. The library is arranged so students can select materials without disturbing library classes.

(4) Elementary scheduling is 42% programmed and 58% flexible. Each class, with the teacher, is scheduled to visit the library one half hour per week, at which time new books are introduced, a variety of library tools are taught, and book selection plays an important role. All children have the opportunity to use the library resource center for reference or browsing or viewing during the open period.

(5) The library is open from 8 a.m. to 4 p.m. for exchange of books, use of audio-visual materials or research purposes. This is possible even with scheduled classes, because of ample space as well as an isolated story hour center. (In the summer program, the library is open Tuesday and Friday each week for eight weeks for two hours a day.)

(6) To assure each child the opportunity of coming to the library, every class is scheduled regularly once each week. Because of the library facilities and personnel, there is time and space to allow for great flexibility. In addition to the regularly scheduled classes, teachers may bring entire classes, send groups or individuals at any time there is need to do so. (The library is over 2,600 square feet, has four areas plus a work area and can accommodate 80 pupils easily.)

(7) [This] school is unique in the fact that its educational philosophy places primary importance on the individual educational needs of each child. Therefore, each child may use the Resource Center facilities as often as and whenever he feels the need to use the facilities available. There are no scheduled classes or groups. Any child may come as often as/or whenever he wishes.

(8) Each class has a scheduled 45-minute period a week. In addi-
tion each day we have periods when no classes are scheduled. During these times any child or group of children may come for reference or browsing. The combination of the scheduled and the open periods seems to provide the flexibility that best meets our needs.

It would seem, therefore, that where exciting programs exist and full use of all materials is evident, flexible scheduling must be part of the organization in the elementary school library.

*Samples of Secondary School Replies.* Among the secondary schools, librarians indicated patterns which show definite changes as the result of a trend toward individual- and small-group study:

1. Teachers sign up in advance to bring classes into the library on a calendar sheet available in the librarian's office. English lab classes have a regularly assigned space held always ready for their use whenever they wish to come—no advance notice is required.
2. Extension of library hours beyond the regular school day or until 9 p.m. each night except Friday. Also the library is open all day Saturday. Extension of hours has been possible through federal funds. (Teachers have access to library when few students are there, thereby compensating for lack of a separate faculty library.)
3. Teachers are asked to schedule library time in advance for large groups and to pre-plan with the librarian in advance of the unit. Small groups are permitted to come without pre-scheduling. A large calendar enables teachers to see conveniently what days and periods are available.
4. Teachers reserve room on forms available at all times on librarian's desk. Students are free to come from classes or study halls on an individual basis.
5. We have two schedule sheets—one for the library classroom and the other for the reading area which can accommodate two groups along with some students from study hall and other classrooms. Since many students have no study hall, teachers are encouraged to bring their classes as often as possible. When they check the schedule, teachers also consult the librarians on material and perhaps, a library lesson that might be needed. When students are working individually on projects previously planned in their own classrooms, the reading area is suitable. We are adding to the library suite another room to be used for individual and small group listening and viewing.
6. This is a team teaching school. There are thirteen resource centers in the building in addition to the central materials center. There is no set schedule. Teachers notify the librarians when they
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wish to bring a whole class. Otherwise, pupils come as individuals or as small groups.

(7) We are experimenting with a flexible modular schedule this year. This type of schedule gives the students a great deal of unscheduled time which allows more access to the library and learning centers. Up to now we have not had to schedule any classes or groups.

(8) We suggest that teachers schedule their classes a day or so before bringing them to the library; but there are times when class discussions excite interest and the class needs to come without notice while interest is high. Social studies and humanities classes which do not have texts may come anytime. Small groups come unaccompanied.

Trends in the Role of the IMC Specialist. Significant trends were noted in the replies to requests for program highlights and for the librarians' concepts of the IMC specialist's role.

Again, beginning with some of the elementary school librarians' comments:

(1) Librarians constantly serve the school and community in the capacity of specialists in the field of all instructional materials; in the evaluation of selection of these materials; in guiding and assisting pupils and teachers in the use of these materials; in organizing materials and making them easily accessible; in being a resource consultant in many other ways, such as serving on curriculum committees and on any committee that participates in the educational development of the school.

(2) Our library is considered a vital part of the entire school program. The basic reason for its existence is to provide, for both students and teachers, instruction, services and materials which will enrich the total effectiveness of the school.

(3) The library is set up to operate as a laboratory for learning how to work. As individuals and as small groups, pupils are given work which will involve them in discovering facts about how knowledge is organized and relating these discoveries to their own personal growth. The librarian is a resource person for teachers in their preparation of teaching units, and for stimulating professional growth and for students in their search for knowledge. The librarian also provides instruction aimed at helping pupils gain appreciation for different types of literature.

(4) As I see it, my role is chiefly one of providing children and teachers with easy access to all materials they want or need, whether
related to the school curriculum or to areas of personal interest. I must teach children how to use library resources for learning and for enjoyment. I must help teachers enrich their instructional programs, and suggest techniques which will actively involve them and their students in productive use of our instructional materials resources.

(5) Guidance in listening and viewing (in addition to reading guidance, reference service and research). The librarian works with students and teachers in promoting the use of all audio-visual materials. Although teachers take the responsibility for showing their own films and filmstrips, the librarian is always available for instruction in the use of any type of equipment and production of materials.

(6) The general objective of our library program is to work with other members of the faculty, in every possible way, to help solve our school's most pressing problem—the lingual handicaps and cultural differences of our children which adversely affect their academic achievement in all areas of the curriculum but most significantly in the language arts. This problem is aggravated by a continuing turnover of pupils and by a continuing influx of new Cuban children with no knowledge of English.

We are attempting to meet this pressing problem by continuing the ungraded primary program which was initiated last year; by regrouping the children in our upper grades for language arts instruction for a part of each day; and by extensive use of the special services provided by our flexible library program, a corrective reading teacher, a language arts specialist, a district reading specialist, the District Reading Clinic, and a visiting teacher counselor.

We run a double-edged library program, using two librarians and a clerk (Cuban Aide) in flexible management of a Reading Room which operates much like a small public library, and a separate room for instruction in library skills, story hours, and other such activities. We also handle the reservation and circulation of films from the county A-V center, and the maintenance and circulation of our own A-V equipment and materials.

(7) . . . Sponsor our A-V workshop in the fall at which time the teachers have to operate this equipment . . . work closely with our teachers in helping them find materials that will enrich their teaching program through the use of varied printed matter and A-V materials. We have a teacher-principal-librarian planning session for 30 minutes each morning, sometimes with grade representatives from all grades, and sometimes with the three teachers within a grade. At this time classroom activities are discussed, and the librarian has an opportunity to know what is going on in the class-
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room; she is able to relate many library activities to the classroom activities, to supplement and enrich; the librarian has an opportunity to suggest materials and books in the library and to secure other books and materials. Since there is a general flow of materials from the library, the librarian works daily with all teachers in making the library a central and basic part of the instructional program. The materials have been purchased through the requests from the teaching staff to supplement and enrich the reading program for our teachers.

(8) At the beginning of each school year, I have an informal workshop for the new teachers to acquaint them with the use of A-V equipment and various media. After this initial briefing they can come back for more details. I have found that all teachers like to be informed!

(9) Our system of field trips is an unusual feature of our center. Most of our field trips are in our own community. When a field trip is impractical, as in the study of mushrooms, the coordinator visits the mushroom house and brings back boxes with spawn which the children take care of. In addition films, pictures, and reference materials are examined. [This center also includes] a collection of plants not common to our area, growing in the school greenhouse. Here boys and girls not only study the plant... but help to pollinate and propagate plants... Greenhouse activities are directed by the A-V director.

It is evident that a team approach is basic in the development of the elementary school library materials center and that a considerable variety of materials and experiences is made available to both teachers and students. Furthermore, flexibility of space is important to creative program services as exemplified by one librarian's statement that “book shelf partitions are on large rollers. We can, and do, convert the room into a theater museum [or] United Nations with no effort... Children often sit on the floor (carpeted) or at low Chinese tea tables.”

From among those submitted by the secondary school librarians, the following quotations seem noteworthy. The relationship of organization to program is reiterated consistently:

(1) In our school the librarian’s role is that of catalyst, because the school is in the process of changing from strictly textbook teaching to use of all media to motivate and enhance learning. Teachers cannot use or encourage students to use materials and equipment about which they know nothing. The librarian will aid in presenting them the opportunity to change by gathering new ideas from books, periodicals, exhibits, conferences, visits, etc. New equipment is
demonstrated with emphasis on its use in various ways to enrich learning for students. New material is obtained and efforts are made to see that the teachers are aware of how it can be used in developing competent citizens.

(2) We are not so much specialists as we are generalists. We coordinate faculty groups on selecting and evaluating instructional materials; supervise purchasing, processing, distribution and maintenance of these materials; participate in curriculum planning and development; provide services designed to facilitate effective use of instructional materials and advise on the use of our production arts.

(3) With ESEA, Title I funds, we have set up a “Reading Library.” It is nothing more than two conventional classrooms converted to one large room plus two tiny conference rooms. The large room is handsomely carpeted and furnished with comfortable chairs and bookcases. The collection of books here began with 500 easy-to-read, high-interest, low-vocabulary books that were originally scattered throughout the main library collection. Special popular magazines were subscribed to and the room made available especially to non-readers and exceptionally poor readers in our non-graded English program. Essentially, the purpose of the room is to motivate all students with poor reading ability or simply no interest in reading, to read for pleasure.

(4) I try to find areas where the various teachers are strong or have a special interest and then concentrate on materials in that area until I have enough for an effective group project or unit. Methods of luring teachers to try units of this sort are varied. Whatever the method, once the project has been tried, teachers are usually more than pleased with the results and the variety it adds to their programs. Students, too, seem to welcome a change from the text and the classroom. It has been my experience that once we have had a successful unit in the library, teachers schedule early the next year for a repeat performance.

(5) Our teachers need recognition for good work. We began making written reports to the principal describing the progress and needs of the library—no names of teachers. These are now monthly—positive reports!—with one important need identified to work on the next month. There is also an annual one illustrated with graphs, charts, and (this year) with captioned pictures, “What do teachers do in OPHS library?” which follows two pages in our Library Handbook for Teachers. These colored pictures have been most successful. Although there was a list of desired pictures, none had to be posed. The teachers were so pleased, we could tell it was good
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public relations for the library; good for teacher morale, as well as good for pointing out desirable library activities. Teachers learned more things to do—from what others were actually doing in the library. The slides have been arranged into a story and presented with appropriate comments—including side ones from the teachers! College groups who have seen the program have learned from it too—and it has been good for the image of our school.

Space does not permit a detailed discussion of the peripheral services which result from the well-organized IMC. In addition to media which directly enrich the classroom teaching situations, there are many types of special materials which must be made available to reading specialists, to counseling and guidance departments, to special teachers concerned with new programs for disadvantaged children and youth, to therapists working with the physically handicapped. Librarians, A-V specialists and teachers have still only begun to experiment, to explore creatively the needs of the student with a problem, to fit the media now available to the specific situation, and to make learning an exciting process.

There are problems too which must be solved. Technology must be used by the professional to serve the operation of the center rather than allowed to determine the services of the center. Closer professional relationships must be developed among librarians, media specialists, curriculum analysts, production and publishing firms.

There is no question that the school library, organized as an instructional materials center is today a firm educational creation which has been accepted in varying forms by educators. The imaginative programs now being developed in library centers are truly the basis for tomorrow’s concept of Total Service.

References

1. “News from Knapp School Library Project,” a 1966 published statement, prepared by fourteen school library leaders who are serving or have served as members of the Project’s Advisory Committee. (The pamphlet presents some of the most relevant concerns of the Project in the development of school libraries and offers guidelines frequently sought by the Project’s demonstration schools, by visitors attempting to assess needs and chart plans for the future, and by others who have seen the Project schools as models.)


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**Organization and Operation of School Library Materials Centers**


Learning Resources Approach to College and University Library Development

FRED F. HARCLEROAD

Recently, in the foreword to an important book written for the Council on Library Resources, Verner W. Clapp defined "library work" as "the operations connected with assembling information in recorded form and of organizing and making it available for use."¹ In the introduction to this same book, J. C. R. Licklider, the author, wrote, "The 'libraries of the future' may not be very much like the present-day libraries, and the term library, rooted in book, is not truly appropriate to the kind of system on which the study focused."² In a sense, these two somewhat contrasting statements epitomize the difficulty of modern library theorists and their concerns for "learning resources."

Today's problem is one of abundance—abundance of printed materials and of information stored in non-print form. One hundred years ago, the Harvard Library contained approximately 120,000 volumes. In this year alone, Harvard Library expects to accession more than 120,000 books. Because of the increasing flow of printed materials, even Harvard Library's accession rate is too slow for a great university library which hopes to meet its research function; maintain constant, comprehensive growth in its book and periodical collections; and continue its reputation for high standards. With the development of the computer and the resultant systems for rapid information storage and retrieval, forward-looking librarians have focused their attention on the problems of cataloging, storing, searching for, and reproducing this mammoth amount of information. It is perfectly logical that the major focus of the scholars of the library world, working in large research institutes or universities, should be on ways to cope with the massive flow of new information and its proper storage and use in meeting the research function of the university.

At the same time, the technological improvements in photography,

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magnetic recording, and pictorial transmission have reached a confluence with the increased research on the “learning process.” Several libraries have added materials which are preserved by these methods. However, in many established libraries they remain outside the pale and are operated by units independent of the library. These new materials and techniques for storing and presenting knowledge to students and scholars have brought about an emphasis on independent study and learning far greater than was possible before. In addition, they have made it possible for students and professors on many campuses to produce their own materials to meet local needs. Such demanding work is considerably beyond the concept of a library which assembles material prepared previously by others.

Several factors make a difference in the development of learning resource programs on various campuses and their relationships to library development: (1) the size, (2) age, and (3) major purposes of the institution. Small institutions with relatively limited financial backing and building space tend to include very few of the newer learning resources among their book and microform collections. On the other hand, comprehensive institutions with large libraries tend to have separate television and radio units, audio-visual service units, programmed instruction centers in many departments, and duplicating centers all over the campus. Older institutions with long-established libraries do the same, adding new units for technological developments such as television, audio-visual services, programmed instruction, computer and data processing operations. Some new institutions incorporate all these operations within the library and develop a Division of Educational Services or of Learning Resources. The type of institution also appears to make a difference, although this factor is associated with the size and age of the institution. Institutions which emphasize instruction over public service or research tend to combine their services in some fashion. The great research universities of the United States have massive libraries—and massive problems. They tend to leave television, video-tape, audio-visual and photographic services to other units of the university. Specialized research services provided by these other technological areas usually remain outside the university library. Also, extension divisions of large research universities often offer the additional film, television and photographic services to the public and then add such services for their campuses. Although these generalizations have many specific exceptions, they are worthy of careful analysis and further study.

A few illustrations will provide some indication of the variations
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between institutions and of the importance of size, age and objectives. Illustrations selected are: (1) two community or junior colleges—the new Brevard Junior College in Cocoa, Florida, and Stephens College in Columbia, Missouri; (2) two small liberal arts colleges—the Oklahoma Christian College and the Oral Roberts University, both in Oklahoma; (3) a new expanding state college—the California State College at Hayward; (4) a university in transition—the Southern Illinois University; and (5) two older established universities—the University of Minnesota and the University of California.

These descriptions are not complete and are quite brief, but will provide enough information to indicate some of the directions in which learning resources programs have been developed on various types of college and university campuses.

Brevard Junior College, Cocoa, Florida. Brevard Junior College has developed a Division of Educational Services with a Director who is immediately responsible to the President. Seven different departments or units are part of this Division, including (1) the Office of Institutional Research, (2) the Office of Data Processing and Technical Research, (3) the Library, (4) the Television and Radio Center, (5) the Audio-Visual Resources Center, (6) the Study Skills Clinic and (7) the Language Laboratory. The Language Laboratory, Audio-Visual Resources Center, and the Television and Radio Center were first brought together in 1964. In 1965, the Library was added as a fourth unit. Then, in 1966, the other three units were made part of the Division.

In describing the functions of the various units one important difference distinguishes the Library from the Language Laboratory, the Audio-Visual Resources Center, and the Television and Radio Center. The Library “selects and acquires recorded knowledge, catalogs it and makes it readily available for retrieval—or retrieves it and circulates it.” The other three units do this for commercially-prepared material, but they also originate and store information materials which they develop themselves on the campus.

The Audio-Visual Resources Center and the Library have been located in a new “Learning Center.” A new communication center is proposed, which will include new facilities for the Television and Radio Center and the Study Skills Clinic. They already have developed a group of specialized booths for self-study which are called “inquiry modules.” These modules allow the student to use films, video-tapes and live, closed-circuit telecasts on a dial-access basis,
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... and give them access to stereotapes, language and other general taped materials containing tests or classroom lectures. In the modules the learner can watch color movies, study microfilm, use controlled reading scanners or read printed materials which have been checked out of the Library section of the Division of Educational Services.

Descriptions of the Brevard Junior College program emphasize the fact that it is attempting to innovate in education, as well as to integrate the use of media; it is interested in pioneering new approaches to learning processes, coordinating all the interrelated professional resources, and using all the appropriate new technology for the welfare of students and faculty. In this relatively young junior college the Library has become only one of seven units in a Division of Educational Services, but it is an exceedingly important unit. Nevertheless, the new technological aids to learning and the production of local learning materials were developed outside the Library and gradually have been amalgamated into a total Division which includes the Library as one of its component parts.

Stephens College, Columbia, Missouri. In the last decade, Stephens College has studied extensively the use of all types of learning resources and has planned and built the James M. Wood Learning Center to incorporate the results. Two useful reports and one magazine article present good descriptions of the development at Stephens.

The Learning Center includes at its core a library for books and other educational media. The total design attempts to provide flexibility in use of space for many purposes, a great variety of learning resources for several educational purposes, and close proximity among the spaces, resources and persons working together for teaching and learning; it also tries to make resources easily available which may improve the educational process.

This Center includes five buildings: an old one which was remodeled, and four new ones. The heart of the Learning Center is the dissemination system which originates in the television, radio and film department—a building which also houses the audio-visual center and a 300-seat classroom. Nearby is the humanities and communications department building with classrooms and faculty office space. On the same mall nearby, is the “resources library” which houses the general library, five divisional libraries, some faculty offices and seminar rooms, and a large collection of audio-visual materials such as motion pictures, slides, filmstrips, records, and tapes. The other two buildings,
housing the art department and the religion, philosophy and language
departments, are connected to the television, radio and film building
by coaxial cable.

In this Center the faculty have planned many projects. They have
used amplified telephone lectures for instruction in a variety of fields.
Tape-activated, rear-screen slide projection is planned and used by
the humanities division. There are listening tables (audio-lab facilities)
in several divisions including theater arts, speech, business education,
social studies, and the humanities. The language laboratory and pro-
grammed instruction materials are used for testing and teaching in
communication, mathematics, foreign languages, and the humanities,
with an emphasis on the aural-oral, reading, and writing approaches
to languages.

However, the most important point about this new Learning Center
may be that the entire operation is organized under a Director of Edu-
cational Development, emphasizing its close relationship to the in-
structional program of the college. Leyden and Balanoff repeatedly
emphasize the need to reexamine course objectives, analyze methods
currently being used to achieve these objectives, identify educational
media being employed in the teaching, and, finally, identify those
methods, materials and media which the faculty consider critical in
meeting their course objectives. The instructional emphasis at Stephens
is obviously strong and the organization of their Learning Center has
everolved as a result.

Oklahoma Christian College, Oklahoma City, Oklahoma. Oklahoma
Christian College, a fifteen-year-old liberal arts college, developed a
learning center in 1962, although it was started originally as part of
a plan for a new library. The result of the planning is a three-story
building with the first floor allotted to a library of 50,000 volumes,
with seating for 110 students, a microfilm room, a reference area, peri-
odical room, and technical processing area. The other two floors house
more than 1,000 study carrels, the offices of the Director of the Learn-
ing Center, faculty offices, conference rooms, two recording studios,
and a control room for electronic equipment.

Each student pays a thirty-dollar fee per semester to rent a carrel
and guarantee his private, specially-designed study. The student has
direct dial-access to three different types of recorded materials: (1)
taped lectures, often used with workbooks, prepared by faculty to
serve as instructional material for certain portions of a course; (2)
dial-access “taped exercises” which are largely drill material needed
in such subjects as language, math or science; and (3) dial-access "aural material"—such as music, poetry, drama, speeches—which must be heard for optimum learning. In addition, the student may check out small projectors and view films or single-concept film cartridges. He can look at filmstrips and slides in the carrel or check out a portable recorder for language laboratory listening, recording and/or playback.

Oklahoma Christian College is an example of a liberal arts college which encourages development of teaching materials by its own professors and students. The carrels or "study spaces" are used heavily during most of the day. As late as 4 p.m. one-third of the students will still be using them. A traditional library is located nearby and has a few additional seating spaces for people who wish to use them. However, the fundamental organization is that of a learning center of which the library is but one part.

Oral Roberts University, Tulsa, Oklahoma. Oral Roberts University has developed a new Learning Resources Center six stories high with very extensive electronic aids. The library is a critical part of the Learning Resources Center and includes "nests" of audio-video carrels. The entire Center is based on a dial-access, audio-video system, with television studios, tape and film rooms, a science laboratory with a closed-circuit television loop, and specialized programming possibilities for film change with slides, filmstrips, video-tape clips or audio materials without the video. Furthermore, the building provides for use of both audio and video response systems for individual or group evaluation of success in learning from programmed materials. In addition to the carrels in the library, there are audio-video carrels in the learning laboratory and audio carrels in the language laboratory. On the whole, this center is used as a supplement to normal instruction. However, there has been some experimentation with its use as a complete self-teaching system. Classrooms with a specially prepared teacher's desk are able to receive any programmed materials that can also be channeled to the audio-video carrels.

Comparing Oral Roberts University with Oklahoma Christian College, one sees that Oral Roberts University provides for extensive transmission of video material to study carrels, while Oklahoma Christian College has audio materials available and is using these materials for certain phases of instruction which are almost "total." Oral Roberts University, however, is still using its Learning Resources Center mainly for supplementary instruction. Once again the emphasis must
be on materials which have been developed within the institution and are made available for study through a dial-access system. The library—the book library—is still available as a part of the Learning Resources Center.

California State College at Hayward, Hayward, California. The California State College at Hayward started in 1959 and now has 5,000 students, enrolled in twenty-nine undergraduate and ten graduate degree programs. Two divisions make up the total learning resources program: first, there is the Division of the Libraries and second, the Division of Learning Resources (which is actually a misnomer, since it does not provide for those learning resources in the library.) The Division of Learning Resources includes (1) the Audio-Visual Utilization Service; (2) the Audio-Visual Technical Service; (3) the Materials Preparation Services, including film and filmstrip production; (4) the Instructional Television and Radio Services; (5) the Instructional Publication Services, including duplicating and stenographic services; (6) the Audio Laboratories which provide for the audio retrieval of foreign language, music, and speech materials; and (7) a Center for Independent Study. The Center for Independent Study enables students to study programmed materials with a variety of different mechanical and electronic machines. It provides for (1) students who want prerequisite background for courses (such as trigonometry, needed for calculus); (2) parts of courses (such as genetics or chemistry in a film series); (3) credit by proficiency examination after studying full course materials; and (4) remedial or developmental work (such as a course in slide rule, which is not given for credit and must be taken on the Autotutor with programmed materials.)

Organizationally, the Division of Libraries and the Division of Learning Resources are parallel, and the Directors of both report to the academic dean of the College. Information regarding the background for this program and plans for its future development in terms of buildings and operation are found in the book Learning Resources for Colleges and Universities, a project completed at the California State College at Hayward for the United States Office of Education. This was published in September, 1964, and suggests future roles which digital computers can play in the learning resources center. At present, there is no provision for their direct use as part of computer-assisted instruction at the College.

Southern Illinois University, Carbondale, Illinois. Southern Illinois
is a developing university with a long history. While its library is not large in comparison with the biggest university libraries in the United States, it has grown enormously in the last decade and recently accessioned its millionth volume. In 1964, a study was made of the interrelationships of the various learning resources on the University campus. As a result a number of these resources—for example, the audio-visual services, materials preparation services, and the self-instruction center—have been incorporated into the library organization as operating units. There are audio-tutorial services in the self-instruction center where a great deal of programmed tape material is provided for students. Combination audio-tape and two-by-two slide series are available for group instruction. Also, students can study film materials in the self-instruction center after checking them out from the center or the audio-visual services. Students taking large courses in art history use the center's self-contained slide projectors, while those in biology use a variety of materials including 8mm. single-concept films, slides, tapes, laboratory materials and models.

A new large general classroom building has been completed recently and makes use of multi-media instructional support provided by the audio-visual section of the library. It has extensive potential for large-group instruction. Student response systems are planned for this building so that professors can have instant feed-back on the learning which is taking place within their classes.

This university's experience exemplifies incorporation in the library of a part of the learning resources on the campus while certain other resources still remain independent and have only limited relationship to the library. Examples are the closed- and open-circuit television facilities, the film production center, and the data processing or computer center. Nevertheless, it represents a way in which learning resources developments can take place in the library of a large university with a rapidly expanding book collection.

The University of California, Berkeley, California. Recently the library at the Berkeley campus of the University of California was rated second in the "over-all library resources index" list which was prepared by the American Council on Education. In June, 1966, the Berkeley campus library had about 3,200,000 books and was receiving 45,000 periodicals. Nevertheless, in December, 1966, the academic senate library committee stated, "Substantial improvements will be necessary if the Berkeley library is to meet the challenge presented by new areas of study, new teaching methods and an increasing
emphasis on the search for knowledge by students, faculty and the many other users.” The \textit{Daily Californian} Weekly Magazine devoted four pages to discussing the problems of the “rich but frustrating” library at Berkeley.

The library obviously has so many problems in maintaining its stature and accommodating the enormous load of book and magazine acquisitions that developments in other technological forms of information storage have been delegated elsewhere.

For example, Berkeley, through its television office, provides a library of video-tape and film for faculty and student use. These materials are available on an interbuilding random-access, closed-circuit television communication system. The television office has 350 reels of recorded video-tape and film inventoried to departments and on deposit in its library. Various materials are prepared by television and film coverage, both in and outside the studio. The office develops thirty-minute lectures and demonstrations for such departments as industrial processes, optometry, and engineering graphics. Shorter modules (programs) of fifteen minutes or less are often made for the life sciences, such as physiology and biology. Documentaries of thirty minutes or longer are prepared for such fields as sociology, criminology, forestry, speech and law. The video-tape and film library is part of the master distribution center of the television office. This master distribution center serves twenty-eight different instructional rooms in five different buildings, with permanent equipment available in each. The television center is but one illustration of the many different “learning resources” which are available on the campus, but organized completely separately from the book library.

\textit{The University of Minnesota, Minneapolis, Minnesota}. The University of Minnesota is another example of a strong, developing university with a large library and strong research program. Over the years the University has developed a unit called “university services” which includes the Audio-Visual Education Services and the Printing Services which normally might be considered part of the learning resources division of a college or university. The Audio-Visual Education Services include a production department which provides motion picture films, teaching filmstrips, microfilms, and copies of opaque and recorded materials. One phase of their production service, the Artist Service, designs and constructs charts, graphs, exhibits, displays; models animation material for motion picture production; and prepares almost any other kind of graphic art required by the university faculty.
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The Audio-Visual Education Services are expanding the language laboratories and closed-circuit television; doing programmed material research; working to provide learning resources in the campus dormitories and study centers; and developing facilities for self-directed learning and independent study. Plans are under way for construction of a central learning resource center where a student can obtain both audio and visual reinforcement by dialing proper code numbers on a dial-access system, including closed-circuit television, film and tape playback, recording devices for both visual and auditory materials and for language lessons. Audio-Visual Education Services hope to have home dialing systems for audio-response materials, including language lessons or capsule reviews of lectures given that day. Once again, new technological means of storing or producing information have developed outside the aegis of the book library.

It seems obvious that great research libraries and the professional leaders from these libraries must continue to spend most of their energy and attention on the book and periodical collections, and on the enormous outpouring of new materials which are to be stored for posterity. Recent books on such subjects as "libraries of the future," "libraries and automation," or "information retrieval and storage" indicate the enormous complexity of the problems which face this portion of the learning resources area. Swanson's recent paper on "Design Requirements for a Future Library," contains no mention whatsoever of materials described in this article as parts of learning resources, other than books, magazines, and microfilm. In fact, the 258 pages in Libraries and Automation include practically no reference to any learning resources except books and magazines. Licklider in Libraries of the Future, does describe the schemata of the body of knowledge as including "strings of alphanumeric characters, and the associated diagrams, graphs, pictures, and so forth, that make up the documents that are preserved in recognized repositories." He also discusses briefly "the problems and developments in the use of computers as aids in teaching and in learning, and as a basis for group cooperation in the planning and design of buildings." However, most books in the library field which describe themselves as dealing with the libraries of the future or the state of the library are concerned basically with punched cards, electronic searching, notched cards, feature cards, microphotography, national library systems, indexing, information frameworks, file storage access, automated storage and access, output printing, interface problems, principles of design, and choice of equipment.

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One of the few contemporary articles which goes beyond these problems is Osborne's paper on "The Influence of Automation on the Design of the University Library." He states that, "University libraries of the year 2000 to 2100 will look very much like the newer libraries of today. They will be more complex in their organization because the bookstock will be greatly splintered, because they will be interconnected nationally with other repositories, and because they will even more than today rely on a multitude of forms, including A-V and TV devices, over and above the microforms and other non-book materials now available." In further discussion, he indicates that "the university library of the future . . . can be anticipated as a still more sophisticated complex of the traditional bookstock, plus A-V, plus IR [information retrieval]. And this means in particular: (1) an intensification of the trend towards individual accommodations such as wired carrels; (2) all conceivable wiring and equipment for technical processes, as well as reader services."  

But even Osborne, although he noted the importance of A-V in varied forms and the need for wired carrels, did not consider the problem of producing local, personalized, and individualized teaching materials on the college and university campus. Ideally, a library will be associated with the total learning resource capability of the university or college and this organization (as suggested in Chart 1 or

Chart 1—Learning Resources Organization Plan A

![Diagram of Learning Resources Organization Plan A]
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Chart 2—Learning Resources Organization Plan B

Chart 2) should be quite comprehensive. Although the large libraries may have to be separate because of their large book collections and enormous problems of storage and retrieval, ideally there should be some relationship between the other learning resources on the campus and the basic part of the learning resource of any campus, the book and magazine collections. At the present time, however, the most promising organizational developments for using learning resources are taking place outside the library in large research universities, and in a new division of educational services or learning resources which includes the library in smaller, instructionally-oriented colleges and community colleges.

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2. Ibid., pp. 1-2.
11. Ibid., p. 73.
Audio-visual Materials in the Public Library

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"Audio-visual" is an umbrella term covering practically all non-print materials which find their way into a library. Whether or not the circulating hand-tool collection maintained by the Grosse Pointe, Michigan, Public Library would qualify as an audio-visual item is questionable. But certainly files, map collections, filmstrips, films, audio tapes, radio and television programs and facilities, slide collections, recordings, and copying, microfilm, and teaching machines do.

Some of the resources named stir no controversy among even the most bookish of librarians. No one writes articles entitled "Do Maps Belong in Libraries?" As for picture files, they were part of library collections when young Tom Edison was "fooling around" with the motion picture machine. Today, even the smallest of libraries will provide at least one vertical file full of pictorial resources.

A library must have copying machines. They save the books. Why rip a page from a book when, for from ten to twenty-five cents, a machine will make a personal copy? On a good day, if the machine has been located properly, a library might even make a few cents' profit. The question is not, "Should a library have a copying machine?" It is, "How many machines should the library have?" Such a question applies to the selection of all A-V materials and facilities appropriate to a library, for the problems of so equipping a public library are mainly those of organizing, staffing, funding, administering, and servicing. There exists a considerable body of literature on organizing, furnishing, and staffing new media facilities in school libraries, but, unfortunately, very little has been written pertaining to the public library. Therefore, the author has sought to supply as many concrete examples of organizational, staff, and equipment arrangements as possible.

At a recent conference, several experts in the audio-visual field William Peters is Chief, Educational Film Department, Detroit Public Library.
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considered the problems of providing audio materials for all types of libraries, and emphasized that, "The key problem to be encountered in planning library listening facilities... concerns administrative planning and the judgments which must be made regarding purposes and the modes of use to which a library's facilities for listening will be put." The main panel speaker listed four questions which a librarian should consider before selecting audio equipment. These same four questions could apply as well to selecting visual equipment:

What are the goals and responsibilities of the library?
What kinds of individuals and groups compose the library's clientele?
What are their needs and interests in books?
And what are their needs and interests in recorded materials as such?

After asking himself these basic questions, the librarian must then go on to decide whether facilities should be centralized or decentralized; whether they are intended for individual or group activity; what equipment, facilities, and furnishings will meet the library's objectives best; what staff should supervise the materials; whether the materials are for circulation, reference, instruction, appreciation; and whether such service will involve production and reproduction as well as simple distribution.  

Keeping these questions and considerations in mind, there follows a brief summary of the chief characteristics, values, basic costs, and optimum administrative arrangements which apply to various types of A-V services, with particular emphasis on recordings and films.

Microfilm. Microfilm is considered a necessary evil by many librarians. "Necessary" because the mass of printed material being acquired by public libraries is so large that, if it is retained in its present form, the size of library buildings must be doubled, tripled, even quadrupled within the next twenty-five to fifty years. Judicious weeding might reduce the problem, but microfilming periodicals, newspapers, and some books will do the same job and still preserve the material. By the beginning of the twenty-first century, some library schools may be offering a course such as Library Science 7292—Weeding Microfilm Collections.

Microfilm, while obviously necessary, is still an "evil" because it cannot be read by holding it up to the light and because threading...
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most microfilm readers is a nuisance, repairing microfilm can be difficult, and buying microfilm can cut into a book budget.

Today, it is just barely possible that there exists a librarian who defends the proposition that microfilm has no place in the public library; however, few patrons would debate such a proposition.

Recordings. Another type of audio-visual material which has become almost—not quite, but almost—a traditional item in the public library is the phonograph record. Recordings of music seem more acceptable than those of the spoken voice. Why, no one knows, since there are certainly more talkers than there are singers. Perhaps it has something to do with the location of recording collections since many of them have been made a part of the holdings of a music department, at least in large libraries. Libraries both large and small have record collections. Most of these collections circulate, usually for a traditional fee of five cents a day per record. Some libraries, notably the Detroit Public Library, have built up sizable collections from fees collected.

Recently, in the Illinois public library system, thirty-four libraries of all sizes were sent a questionnaire concerning their record collections.4 Thirty responded, of which two had established record collections with 78rpm. recordings before World War II, five had begun collections in the post-war 1940's, and the rest in the 1950's with the advent of the 33¹⁄₂rpm. hi-fidelity recording. While fourteen of the libraries reported that they circulated recordings to the same clientele to which they circulated books, nine indicated that the record collection had brought in new users. However, administrative costs are higher than those for the book collection. A recent time-and-motion study proved that it takes the average librarian four times as long to discharge a recording as it takes him to discharge a book.

The librarian should also take into consideration the need for a staff member with a special musical background. While the quality of the recordings is sometimes questionable—some would-be patrons prefer not to risk damage to their expensive hi-fi equipment by playing records borrowed from a library—with cleaning and care, many recordings can be played 50-150 times without noticeable wear. However, they can warp or break, and, in the larger libraries, the days of the circulating record collection may be numbered because of problems caused by damage. In its place will be "reference" collections kept within the library. Records will be played on demand by library patrons on turntables operated by library personnel; or orig-
inal records may be taped, if copyright laws permit, and the tapes played for listeners on request. Original tapes will be issued in the same fashion.

The phonograph record has almost won its battle of acceptance as a legitimate part of a public library's holdings. Everyone will benefit when the rent-a-record era ends.

**Slides.** Even today, public libraries still shy away from the 35 mm. 2” x 2” slide. Few libraries maintain large slide collections, although slides are inexpensive and readily available for purchase. Recently a new audio slide device became available to libraries: a 2” x 2” slide “the back sides of which are coated with iron oxide similar to that used for tape-recording. . . . When the slide is projected, both the audio and the visual are reproduced. This development allows slides to be resequenced without disturbing the audio presentation.” It is evident that the slide medium deserves more attention.

**Other New Devices.** At the 1965 Library Equipment Institute, one panel member discussed several new audio devices which could be used in a public library. A tape reproducer, which employs a much more narrow tape than that now used, is capable of playing for fifteen hours without a stop when it is fully loaded. The Re-Kard uses a file card, “the back of which is treated with magnetic oxide for recording sound. Any kind of graphic data, either photographic or written, can be recorded on the front of the card. In use, the device reproduces the sound on the reverse side so that the [user] has access to both graphic and audio material.” With the new remote-controlled recorders, requests for audio listening can be filled by dialing a code number from any terminal station or carrel. Furthermore, it has been found that:

Tapes can now be programmed just as books can. This possibility gives latitude to the . . . librarian in providing self-instruction services using dual-track machines with a master track that cannot be erased and a student track that can be used for practice. The applications of recorded audio are almost unlimited. Terminals for listening facilities can be installed in the apron of a conventional library table. At any given time these supplementary facilities can be pressed into service as needed.

**Programmed Learning Aids and Teaching Machines.** The introduction of programmed learning aids and teaching machines into public libraries has begun in a very cautious way. In Fair Lawn, New Jersey, the public library will lend six patrons TMI-Grolier teaching machines.
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with programmed texts. The public library in East Meadow, Long Island, New York, maintains a special collection called the “Self-Learning Center.” In addition to teaching machines, the Center will lend textbooks and phonograph records to qualified borrowers. The White Plains, New York, Public Library circulates Encyclopaedia Britannica Press courses which have been programmed in textbook form. In general, public libraries which are closely allied with school service units are more receptive to teaching machines and programmed texts than are libraries which seek to remain independent of schools. In this field, too, innovations have been taking place. For instance,

One of the newer teaching machines has the capability of using programmed audio and visual materials for review, for listening to, and then for duplication in the [user’s] voice so that it can be compared with the master model when played back. The machine offers the option of true or false, multiple choice, and other types of questions, depending upon how it is programmed. In effect, this is a self-instruction device and can be used for individual study.

Films. A relative newcomer in the audio-visual field is the 8mm. film. Long considered an amateur product suitable chiefly for home use, its eligibility as a serious information medium is a subject which generates much discussion among public librarians. The 8mm. film assumes many formats. The “single-concept film” is the name used most frequently. Synonymous terms are “film loops,” “one-idea films,” “brief films,” and “film clips” (which may also be produced on 16mm. film) to name a few. “Single-concept films” are normally short (three to five minutes in length), silent motion pictures which present a single idea or concept. The films are usually mounted in cartridges as continuous loops and may be shown with specially designed cartridge-loading projectors. Teachers are enthusiastic about the “single-concept film,” because it is easy to use; no threading of film, no reels, no sprockets, and no rewinding. Furthermore the cartridges protect the film from handling and dust.

In a public library the significance of 8mm. probably lies in its adaptability to independent study. As more and more loop films are produced and cover broader ranges of content, libraries will have to consider them as possible circulating items. Another 8mm. film format is “Super-8.” “Super” refers to the enlarged area of the picture frame, approximately 50 percent larger than regular 8mm. film. “Super-8” film has made possible the production of release prints of good
quality using sound tracks dubbed from 16mm. and 35mm. originals. The “M-8” format was developed by John Maurer. The viewing area of “M-8” is 20 percent larger than regular 8mm. Both optical and magnetic sound can be handled on “M-8” films.

A few public libraries maintain collections of 8mm. silent films. In some cases librarians will acquire an 8mm. film because they cannot afford to purchase the 16mm. version. But libraries having large collections of 16mm. films are also stocking some in 8mm. With some five and a half million 8mm. silent projectors in use today, the demand for 8mm. film is increasing. Early experiments in development of sound for 8mm. films employed magnetic tracks; now, however, optical sound tracks are also available. But at present it is difficult to predict just which formats will emerge as standard for 8mm. Probably it is safe to say that 8mm. sound films will be more acceptable to public libraries than will silent film. When format standardization has been achieved, more libraries will consider 8mm. films seriously.

The medium which has commanded most attention in the audiovisual field for the past two decades is the 16mm. sound film. Although a few library film collections had been established before the end of World War II, the late 1940’s and early 1950’s were pioneering years during which the American Library Association concerned itself actively with development of the educational film, as important library material. In 1947, the American Library Association received a grant of $42,000 from the Carnegie Corporation to establish a Film Advisory Service at ALA Headquarters in Chicago. Patricia Blair (Cory) was appointed Film Consultant. She traveled extensively about the country assisting libraries in setting up film service programs similar to the one she herself had established in 1942 as head of the Cleveland Public Library Film Bureau. Many large- and medium-sized public libraries across the country were thus encouraged to establish circulating film collections. Gifts, loans, and deposits received from government as well as commercial sponsors helped many libraries start developing film collections.

In Fitchburg, Massachusetts, the Public Library began to circulate motion pictures as early as 1947. At that time, it had purchased only one 20-minute film and had received one film on deposit. Hannah Hyatt, the former film librarian, in describing the launching of the collection related that, “With one projector and a yearly budget of $500 for materials, we started the slow climb—buying one film a year
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for the collection, procuring an occasional gift from a local organization, renting the rest." Fitchburg, with a population of 45,000 had a typical library of medium-size, "typical" in that it was financially unable to support, on its own, the type of film service required by patrons. Even larger libraries could not support film collections to the degree required; collections grew very slowly.

In 1948-49, a second Carnegie grant initiated a new phase of educational film development when two cooperative film circuits were established. The circuits were decided upon as "a financially feasible way" in which small city and county libraries could distribute films to community groups located in rural areas where the tax base was inadequate to support independent services. One demonstration circuit centered around the Cleveland Public Library System and another around the Missouri State Library. Both proved successful and set a pattern for library cooperation in film distribution which has continued through the years.

Film or audio-visual departments should not be regarded as separate entities in themselves, but as integral parts of the whole library. As such, they must share advantages of the present movement toward "library systems." A long-standing excuse used by some libraries to explain their lack of a film collection—"We can't afford films"—is now being overcome with the development of larger library units of service. Several states have made statewide film availability a primary goal.

New York State, a pioneer in the creation of library systems, now has twenty-two regional units. Only 2 percent of New York's libraries are non-affiliated. More than half of the twenty-two regional systems distribute films and other A-V materials from their headquarters library. Each center has its own collection and does all processing of audio-visual materials for the libraries in its region. Backstopping regional services is the film collection maintained by the Library Development Division of the New York State Library. Requests for single films or for film programs which are not available at the regional level may be referred to the Library Development Division.

When the State of Massachusetts established its Regional Library Program, film service was included from the start. Today, Massachusetts has three regional library systems: the Eastern Regional System with headquarters in Boston, the Central Regional System with Worcester as headquarters, and the Western Regional System with Springfield as the headquarters office. The plan of film service has been
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developed to utilize all existing collections and, in two instances, to relocate them so that they could be housed in a headquarters library. Requests for films are forwarded to the regional centers by local libraries. Some sixty-eight public libraries are members of the Central Regional System. Films are mailed to the requesting library where patrons may go to pick them up. There is no charge to either patrons or local libraries. Films not available at the Regional Library may be obtained from the Film Cooperative in Boston or from the Massachusetts Department of Education. Massachusetts does not yet employ a state A-V consultant as does New York State, but the regional consultants in Massachusetts cooperate with each other informally.

In Illinois seven film programs were established and have now been operating for some time. Development of library systems within the state has resulted in dissolution of three of the seven film cooperatives which formerly made films available to the total library system developed to serve their areas. Today the plan is to establish film service in each developing library system as well as to maintain a collection of rare or more expensive items at the State Library, items which local or regional units might not be able to afford.

In Michigan, the work of creating library systems is progressing rapidly. Plans are well under way to create a statewide film network which will assure all community groups within the state free access to films. Pennsylvania, Maryland, North Carolina, and other states are also finding ways to provide film service to rural as well as urban regions. It should be noted, however, that very few states could afford to embark upon such programs were it not for the Federal funds received through state libraries under terms of the Library Services and Construction Act. As public demand has increased and more money has become available for support of augmented library service through release of Federal and state funds, public libraries have become more conscious of the values of non-print materials. But public libraries as such are not likely to develop into instructional materials centers; this is the responsibility of school libraries where specialized personnel can be employed to ensure the proper instructional use of all materials. It is hoped, however, that all types of libraries will recognize the value of A-V resources and will eventually come to realize that simply having and lending recordings or filmstrips is not enough.

An important and largely overlooked aspect of A-V service is proper and effective use of media. Audio-visual specialists must not be re-
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garded as the only professionals involved in providing A-V service. All librarians must become involved. In too many libraries audio-visual personnel are separate and apart from the balance of library staff. Too few librarians feel responsibility even for knowing the difference between films and filmstrips, let alone for helping to plan new A-V programs or service activities for the community.

To sum up, despite many problems, both physical and philosophical, that remain to be overcome, the future of A-V materials service offered by public libraries is bright. There is, of course, no one perfect way to build or maintain A-V collections. The types of material to be acquired and the sizes of collections must be determined by local conditions and by changes in technology. Above all, libraries must be responsive to the needs and desires of patrons. As public institutions they can do no less.

Maurice B. Mitchell, former president of Encyclopaedia Britannica Films, reminds us that:

In the span of our own lifetime, man wrought another great communications revolution. He devised radio to throw his voice around the world, jumping the highest mountains and spanning the widest seas. He developed photography and the motion picture. Photography had come painfully on pieces of wet glass and tin, then on paper to preserve with the magic of the camera the sights which lay beyond the horizons of people’s eyes. Man learned to make these sights move. He learned to match the sights with sounds he could record. Finally, he learned to throw both across the skies in a split second with the magic of television. Man had recovered the sight of his eyes, the use of his voice, and the hearing of his ears, to any horizons he cared to view. He opened the doors to a new era in education.⁹

One phrase which sums up the advances made in providing audio-visual services in the public library is, “Little by little and bit by bit.” If libraries and librarians are to be—and they must be—full partners with all A-V agencies in this new era, the phrase should be revised to “More and more, faster and better.”

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New Media Facilities

JOHN H. MORIARTY

Physical quarters devoted to audio-visual service in libraries are often makeshift because of their location in old buildings and/or their secondary status. As a consequence, to write about them descriptively could be useless. However, when considering what A-V quarters to recommend, a library consultant is confronted with drafting an almost equally useless prescription: "Allocate every square foot that funds will allow, and provide conduit (of sewer pipe size, if possible) for electrical wiring with outlets placed in the floor, walls and ceiling every ten feet."

In his recent book on Planning Academic and Research Library Buildings, Keyes Metcalf, a wise elder statesman in the field of library architecture, quite sensibly devoted some two pages out of four hundred to audio-visual service areas and, even here, his general advice was not to accept responsibility for planning such units. Nevertheless, this year hundreds of librarians will participate in planning new libraries in which they must work for a quarter of a century to come and, because of both the technological and educational changes anticipated, they should be helped to get ready to make the best of a complex, shifting situation.

Unlike the codex book—which was invented a millennium and a half ago and remained stable for about five hundred years—most audio-visual material is subject to change in form or format on an almost annual basis. Users of audio-visual materials are almost as unstable in their employment (in an architectural context, their deployment) of A-V materials. And so, with full knowledge of how ephemeral such remarks may prove, the writer offers personal, practical, and very "down-to-earth" advice (most of which is not in books) concerning what, in light of his experience, seems sensible "space and area" thinking about library service with "newer media." While change

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in communications technology and its increased educational use cause most of the uncertainties in planning A-V facilities, this article confines itself to demands placed by increasing use, and will not attempt either pedagogical or administrative justifications of A-V service as provided by librarians. Suffice it to say, that new media services and their staffing are assigned to libraries often enough to warrant interest and concern on the part of the library profession generally.

To restore some order in the chaos caused by A-V equipment and the space problems encountered in planning library service, the author has chosen to deal with these problems under headings relating to patron use rather than to emphasize differences in variant forms of equipment which the phrase “audio-visual” suggests. In this article, space problems will be discussed as they concern the allocation of space in libraries (1) for individual study or service, and (2) for group viewing or listening (as well as for exhibits and seminars).

Library use is predominantly on an individual basis, despite public library film showings, stories told in children’s rooms or poetry readings held in a college library. While much audio-visual material originates in forms intended for mass consumption, a significant part of what is “published” in various audio-visual formats can be just as effective as information or as an emotional stimulus when addressed to the single student.

Prescriptions for individual study space intended for student viewing and listening have usually been understood in the past to mean requirements for some type of booth having distinct physical isolation and/or resembling a darkened cubicle. This is still true; fortunately, however, it is becoming less so. Actually, current styles in library seating, often designed for one or two persons, allow as much space for listening as do the specialized tables or “booths” used frequently in A-V centers. While viewing films can present special problems, most projectors will accommodate individual use of earphones, and a plain white or neutral wall eight feet away will serve as a satisfactory screen. This is the same amount of space often allowed in designing carrels. The point to remember is that individual viewing and listening activities involving “mass” media can be scattered widely through a library, with little inconvenience or distortion of either book or audio-visual service utility.

To maximize individual use of A-V materials, the purchasing library must buy earphones for use with tape playback machines, record players, projectors, and other audio-visual equipment, and make sure
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from the outset that all such equipment is both portable and strong; it must also provide for the maintenance essential to ensure a continuing, as well as quiet, sanitary operation. Those planning a new or refurbished library which is to afford audio-visual service on an individual basis must be certain that special electrical outlets are installed as extensively as overhead lighting to ensure that all areas can be fully used as well as properly illuminated. It is a rule of thumb that the cost of putting in new power outlets after completing or remodeling a building may be ten times that of installation during original construction. All planned uses of library quarters shift and vary over the years, and a free, even lavish, provision of electrical outlets will ensure future flexibility for audio-visual and other needs.

In summary then, the allocation of space similar to that needed for a study carrel, probably 8' × 8', and the installation of adequate electrical outlets in areas which otherwise would be used for stacks or reading rooms are the most that audio-visual service for individual study should require.

In some academic and public library buildings, individual listening booths have been grouped together in banks or clusters. Each booth is equipped separately with earphones so that a central desk or service attendant may play a record or tape desired by any user in any booth. An earlier arrangement was to have an attendant at a central service point who would play a disc by transmitting the sound to a full-volume speaker in a soundproof booth or room where the listener sat. Today, using modern "dial-access" equipment, a listener sitting in a booth can request a lecture or musical performance automatically simply by dialing the proper number or letter code which then activates a remote mechanism to retrieve the proper recording from a reservoir of tapes.

Grouping booths in libraries around a central service area can present both equipment and wiring problems. No architect or librarian should attempt to install such facilities without the benefit of expert consultation. Communications technology is changing so rapidly that generalizations cannot be made as to the most satisfactory arrangement. Of course, some space may be saved when A-V listening facilities are blocked together, but ordinarily this will mean staffing a special station and, thus, an increase in personnel costs.

Traditionally, librarians summon up thoughts of large and small group viewing and listening when thinking of audio-visual service areas. The relatively infrequent use of such space will fret a library...
administrator since, inevitably, other areas are often crowded with readers and books; it is true that planning such areas for libraries has too often been done poorly. Too many architects envision group space, especially if it is sizable, as a way to achieve theatrical rather than educational ends.

Therefore, shrewd librarians emphasize and reemphasize to an architect the educational importance and use of large group space. Asking for tablet arms on movable chairs will at once alert an architect to the intended use of an area for instruction. Requesting room lighting that will permit reading, even studying, while the room is darkened for projection is another way in which librarians can make their A-V intentions clear. Slanted floors may be justified in some audio-visual presentation areas, but they normally bind the area to a single kind of use. Thus, in most public and college libraries, slanted floors are not recommended since the gains in convenience for A-V showings are small in comparison to gains to be made in flexibility when level floors are specified. For example, having a level floor area will permit a large library room to be used for exhibits or displays and, with only simple rearrangements, for lectures, the screening of motion pictures, and viewing of educational television.

Wherever feasible, large group spaces should be capable of division into smaller spaces by rolling doors or mobile partitions into place. While such areas can actually be made soundproof only in rare instances, they allow fuller deployment of what, without them, would be rarely-used facilities. Also, such room dividers will enable a library to hold several meetings at the same time, or to use part of one area as a short-term storage space without losing or harming the space remaining.

It would be nice if the auditorium in the average public or college library did not demand a special booth to quiet film projector noise. But, unfortunately, motion picture projection is noisy. So one answer here is simply to enclose a projector stand with a special wall so designed as to deaden sound. If the architect will provide a closet to do this, well and good. However, if a fixed enclosure handicaps the flexibility which might be needed to position a screen or projector properly for different locations or sizes of groups, a movable projection "barrier" lined with sound-deadening material should be provided, or else listeners must be asked to ignore the distraction. (The last is a counsel of despair which librarians as well as manufacturers of projectors should not ask of patrons.)
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The problem of locating seats for film viewers and a screen or television set (or sets) for maximum visibility is actually not architectural. Only when a space will seat eighty to one hundred persons do the problems of screen size, audio-speaker positioning, and possible installation of a projection booth need to involve the architect. When proper lenses are used, most projectors in general use will throw an image of adequate size in a room which may seat up to one hundred people. However, building plans should specify a ceiling height of at least twelve feet so that a screen or television set may be positioned for good viewing, and so that a projector's throw will clear viewers' heads without obstruction. Speakers should be located at ceiling height or even in the ceiling itself.

The possibility of using a large open space in a library for an exhibit area or "art gallery" was noted above. If the amount of space required has been kept clear of permanent, fixed, specific-purpose A-V paraphernalia, such a service can be provided easily. Bare walls and a clear floor are the primary needs. One useful specification is that a picture rail or slot be provided along the walls of such an area. When not in use, the rail poses no problem. But, if it is available when the area is being used for exhibitions, much time and wall maintenance will be saved. In fact, it would be marked improvement in library halls and in all passages having a clear wall space ten feet or more in length, to specify installation of picture slots. Sooner or later the inevitable makeshift posting of notices, show cards, or signs on such walls will yield eyesores. Providing a picture rail or slot at the start can at the least prevent some damage and at best facilitate optimum effective use of a potential display area.

The storage and security space required to house the various audio-visual media is analogous to "reading rooms." There cannot (and should not) be one universal standard reading room or mode of shelving; similarly, there cannot be a single design for optimum utilization, storage or security of audio-visual materials. Indeed, it cannot be over-emphasized that the search for flexibility, described above in relation to user-facilities, must apply equally to provisions made for storage and security. Too many locked equipment closets create both a nuisance and a delay in service as well as increased cost of use. Whatever neatness and security results from using such facilities almost certainly will not compensate for the loss in flexibility.

Since the average school, public or college library seldom possesses more than one piece of any kind of equipment, one can be rather
casual about both storage and security. As with utilization, the main principle to follow when confronted with a problem of how much of any item should be ordered is to keep from over-specific assignments of space. The sizes of equipment, reels of film, discs, and tapes change so rapidly with technological improvement that precisely designed cupboards and slots can very soon become obsolete.

The large number of breakdowns which occur during A-V presentations contribute to much dissatisfaction with audio-visual library service. Frequently, these breakdowns are due to inadequate user preparation or mismatched equipment. But equipment failure is responsible for the hard core of poor staff performance. Few libraries are able to maintain large repair service units or staff. But some space at least should be provided for checking equipment, storing minor replacement parts, and inspecting films and tapes in order to prevent circulation of damaged material. These and similar maintenance activities are mandatory. An area of 10' × 10' is minimal; an active audio-visual department would require probably twice the space. A repair bench area (or equivalent) having several power outlets and deep shelves (twelve or more) are necessities. As an alternative to transporting equipment to a local repair shop or sending it out of town to a factory, a repair shop will often pay for itself since it will enable a store or travelling service man to do needed repairs on library premises, thereby ensuring added days of equipment availability for A-V service.

From an architectural point of view, the space problems encountered in storing films, tapes, or other projected materials are not unique in the library. Regular library shelving is often adaptable for these materials since they are similar in size to books. Even TV tapes do not pose an unusual problem of storage for a librarian accustomed to shelving large, bound magazines.

However, slides, transparencies, and disc recordings do present special problems. Many sets of slides are sold in boxes to help their handling, and most discs come in attractive albums; both the boxes and album covers, however, are as fragile as a publisher's binding for a novel and usually are not suited to repeated use or long life on a library shelf. Librarians must be on the alert to find more suitable "packaging" for such materials. Furthermore, the basic role of space flexibility dictates that such collections, if they are large, be stored in movable shelving or cupboards which can be reached easily by persons of average height.
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The facilities needed for most non-projected media present another and different story. Here the old problem of librarians—what to do with maps and globes—is compounded by the necessity of finding ways to store flat pictures, cartoons, clippings; models and mock-ups; specimens; posters, blueprints, charts, graphs, diagrams; felt, flannel, magnetic and other board materials; and exhibits. Problems of allocating space and facilities to these materials are numerous and almost always are rather specialized, depending on user practices, size of collection, and similar local considerations. Map cases have been adjusted to library use for a long time, and the floor space and strengths they require are calculated easily. Vertical files pose other problems; cupboards for specimens and objects (such as a doll collection) must usually be custom-made and adapted to the space allotted. Attics and cellars (if the ever-burgeoning book collection can be kept out, which is a large "if") can be a boon to the A-V specialist with exhibits on his hands. In an architect's language, this problem calls for a large "circulation" or "turn-around" area that, periodically, will be empty.

Since librarians use many book trucks on wheels, the problems of moving and shipping audio-visual equipment and materials are not unusual. Of course, mail and receiving rooms should be accessible from the outside by ramps, as in any well-planned library. Once the problem of handling materials in the general service area has been thought through (for example, provision for counters of the same height as carts used to move projectors and book trucks is vital), receiving exhibits and other bulky shipments is greatly facilitated, as are projector or equipment loans to library branches.

At one period or another in their professional lives most librarians will live in old or marcescent quarters where makeshift or downright awkward arrangements are unavoidable. The introduction of audio-visual (or newer media) services into such libraries sometimes, not always, will strain the long-tested adaptability of even the most experienced librarian. Since at the base of the newer media are technologies which change and usually "improve," the shape, size and special requirements of A-V equipment and materials will, inevitably, be fluid for an indefinite future. The wise librarian accepts this inevitability and, as with other elements of uncertainty in his milieu, meets the problems posed as standard elements in his over-all responsibility. At least, this is a "creative" approach. If, as is occasionally the case, a librarian feels newer media have been foisted on him, poor service will be virtually certain. But a diffident attitude toward the
physical problems of accommodating new media is not warranted. The problems simply are not as large as all that.

In conclusion, whether new media are viewed negatively in comparison with a librarian's victories over past problems, or are regarded positively in the light of enrichments they may afford, they cannot be kept out of the libraries of today or tomorrow. Proper facilities must be provided, for which simple criteria have now been advanced.

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The Importance of Newer Media in Library Training and the Education of Professional Personnel

HAROLD GOLDSTEIN

Newer media do not yet have much status in libraries nor, as a consequence, do the in-service training and formal audio-visual education programs developed for professional library personnel. It may be conjectured that, if library practice continues to be slow in accepting and putting into effect new theories and principles, both pre-service and in-service training will be out of date and will thus perpetuate already negative attitudes.

Audio-visual courses currently offered in library schools tend to be more concerned with the "nuts and bolts" aspects of the newer media—equipment and material maintenance and scheduling of use—than with the shape of future media service requirements. It is true that the introduction of information and computer sciences into professional library education has generated a shift of interest in the direction of library networks and computer capability. But, generally speaking, little professional recognition has been or is now being given to what the author believes is probably the way of future program development—the creation of a new variety of media service agencies which, as they cut across "type of library" lines and "plug in" to local, regional, state, and national systems and networks, will enable local agencies to become chiefly terminals for larger units serving specific clienteles.

Current thinking about such future library service development and about what might be done, for example, to serve newly-planned communities, is reflected in a number of recent articles and studies. One such study of communication and information services planned

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for Columbia, Maryland, proposes creation of a new Communication Service Agency which would contract with schools, colleges, business, industry, local government, and public as well as private groups to provide a full range of traditional as well as newer media program services.

In the author's opinion, present audio-visual equipment and materials are, in large part, obsolescent if not entirely obsolete, as are the administrative arrangements by which they are provided. Thus, the more typical in-service training programs and pre-professional courses which stress present-day operations and models are that much more deficient. Training outside library schools is usually sponsored by the employing libraries and by professional associations. The latter give chief attention to the availability of materials and to the need for bibliographic aids, while the former tend to represent the afterthoughts of a library personnel training officer who “throws” A-V into an already crowded schedule just to be sure it is not overlooked.

The picture is not any brighter for library schools. A few years ago a conference was held in Chicago to introduce library school professors and deans to some new ideas about ways in which the new media might be deployed (1) to enrich patron services, and (2) as teaching aids in both library school curricula and in-service training programs generally. The conference was attended by faculty members representing almost every major graduate school located in the United States and Canada. It hardly needs reporting now that the conference failed to produce a “revolution” in library school thinking. Indeed, there has been no visible follow-up. And at this point in time, it may be fair to state that:

1. The newer media are still not regarded as significant elements in library service by library school teachers and administrators.
2. Neither pre-professional nor in-service training programs developed for libraries have reached a significant stage of development respecting new media services.
3. The newer media are not used either extensively or well to assist teaching any aspect of librarianship in either formal or informal instructional programs, and there is no evidence available to suggest that there will be any changes in the near future.

The results of a study conducted by the author in 1965 for the ALA's Audio-Visual Committee on the use of audio-visual aids in
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Library in-service training programs serve only to corroborate the above statements. The scope of the study included (1) the use of non-print training aids in libraries; (2) the extent to which such aids were made available; and (3) their presence and use, if any, in the training programs offered by accredited library schools. Two aspects of new media training were considered in the study: use of aids for training staff, and use of aids for orienting library patrons.

Some 144 questionnaires were mailed. The sample was restricted to larger library units, i.e., public libraries which covered populations of 50,000 to 100,000, and of more than 100,000; academic libraries with student populations of more than 8,000 and full-time staffs of more than 60; and state libraries. It represented approximately one and one-half percent of all public, academic, and state libraries in the country. The returns, when analyzed, indicated that of those which replied, 104 (or 75 percent) actually made no use of non-print materials in their training activities. Among libraries which gave an affirmative response were a number which offered some patron instruction and, therefore, made at least limited use of films, filmstrips, slides, recordings, tapes, posters, projectuals, and the like.

Follow-up visits were made by the author to a number of metropolitan centers including greater New York, Detroit, Milwaukee, and St. Louis. Conclusions based on direct observation bore out the results obtained from questionnaires:

1. Even among those libraries which did make use of newer media in their in-service training programs, such use was scant.
2. Some few aids had been locally produced for specific purposes, and some commercially; for the most part, librarians felt that the use of standard commercial films, filmstrips, and projectuals ensured better results.
3. There appeared to be little, if any, relationship between the need for large-scale training programs and the use of audio-visual aids.
4. Aside from library personnel directly engaged in providing audio-visual services, professionals appeared to resent the generally amateur use of A-V aids in their in-service instruction.
5. It was noted that library training officers were not really familiar with new media and tended not to use them effectively.
6. Even at those institutions where more sophisticated inventories of A-V equipment and other resources were available for patron orientation and/or staff training, utilization of these resources
for in-service training was at best occasional and, more commonly, inferior.

Thus, to sum up results of the survey in colloquial terms, librarians on the job were simply “not with it” respecting use of newer media for either in-service or pre-service education.

By contrast, information obtained for the survey through conversations held with directors of training and personnel services employed by commercial organizations revealed that these organizations made extensive use of many well-designed training aids—films and projectuals—and of some programmed instruction as well. These aids were believed invaluable in improving the quality of the training offered, in reducing training costs, and in accelerating the teaching and learning processes. One chief difference noted between typical company and library attitudes toward training was the higher priority given by business and industry to staff training, especially that offered to middle- and upper-management levels.

As for library education agencies, the net yield of the author’s survey impressions suggests considerable lack of interest among most faculty members, apart from showing general films on library service; introducing occasional slides, a few projectuals, and recordings in materials courses; or making occasional use of an opaque projector to present materials used in teaching cataloging.

This is a rather dismal situation when compared to the results of attention now being paid the new media within the world of education as a whole. Since passage of the Elementary and Secondary Education Act, projects involving Titles I, II, and III of this legislation have led to many attempts to procure and use successfully a variety of new devices. While the feedback from user to educator within a training institution is neither swift nor certain because of on-the-job pressures among teachers and school administrators, the number of special training ventures, both short- and long-term, is impressive when viewed from a national perspective. And as such ventures continue, designers of formal training programs are becoming increasingly aware of their responsibility to prepare the teacher to deal more effectively with newer media within education.

Since completion of the survey, some new approaches have developed including use of closed-circuit TV to introduce classroom presentations simultaneously to two or more audience groups, to demonstrate cataloging procedures, and simulate basic library routines. A new type of demonstration laboratory is being planned for installa-
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tion in one institution (the University of Pittsburgh), which will include a full range of Flexowriter and computer terminal equipment on which "live" projects may be managed by students working under faculty surveillance to ensure acquaintance with the newer equipment and the procedures needed for library automation.

Other exceptions to the negative survey results reported above were reflected in (1) information provided by Southern Illinois University regarding experiments with programmed instruction for library orientation; (2) the information received from Illinois State Normal University concerning use of televised presentations to accomplish the same end; and (3) in a recent article by Becker 4 which called attention to a growing interest in systems of communication among some libraries. But, generally speaking, a review of pertinent literature and informal field queries have not discovered any new activity begun since completion of the survey which would lead the author to modify the conclusions stated. Nor are there reasons to change his opinion to the effect that the common denominator found among librarians respecting use of newer media in training and professional education programs is a view that such use usually entails "too much time" and "extra expense" to be warranted.

Since, then, there is a lack of interest in adequate training opportunities and improved service programs, what should be done? One possibility is to make more use in larger libraries of technical media specialists who have been trained outside the library profession. Here the difficulty is, of course, that such personnel may find it hard to mesh their efforts comfortably with those of a traditional library staff. They just do not feel "at home" and tend to leave a library employer when the first "good opportunity" comes along.

Respecting in-service education as such, more use could and should be made of consultants and of commercially prepared instructional aids devised by commercial and non-commercial agencies which specialize in training problems. Such agencies are often used with much success by business and industrial concerns. Library managers would, of course, have to be convinced of worth because of the substantial costs to be met. But, at the least, the proposition deserves a trial under fair conditions.

Within state as well as national professional associations there should be established strong headquarters staffs and membership divisional units which will keep librarians up to date respecting developments and trends in the field and which may provide badly needed
counsel and professional expertise to assist and improve both new media service and training effort.

But, in the author's opinion, the most important place to break the circle of apathy and ignorance regarding new media is within the graduate library schools. Here, at least, some time is available to introduce expanding concepts of library functions, the nature of library systems and networks, and the probable requirements that automation and the national information demand are likely to impose on the design of future approaches to library service.

From books to films, from films to computers and from computers to more advanced installations—this is a series of steps which should have been taken long ago in planning modern library school curricula. And, to repeat a point, throughout professional training greater attention should be given to the acquisition, processing, storage and retrieval of knowledge as distinguished from specific forms of library materials.

Beyond the library school curriculum there is, of course, the possibility of developing more advanced in-service training programs, perhaps to be supported cooperatively by regional groups which may very well have been organized primarily for other purposes such as the common storage and processing of material. One also might suggest the development of traveling training teams, staffed independently, or perhaps even cooperatively, by one or more of the graduate schools which now serve the profession. In any case, developed on a regional base, a suitable orientation and training center (perhaps to be located physically in one of the larger libraries and/or a neighboring library school) should be established and sufficiently well-equipped and motivated to manage on a sound contractual basis an effective training program and the demonstration of new media services under optimum conditions.

In closing, there is just one question to ask—will or will not the library profession take hold and use to the full those resources now available in modern communication and information technology in terms of both services to be provided and as aids for use in the training process? If not, even the most book-oriented service programs stand to be isolated and compromised seriously while others take over both functions stated. The need now is not for more A-V gadgets and gimmicks, but rather for sober, professional recognition of two facts: (1) responsible performance of the library function must include provision of a full range of recorded communications media;
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(2) The professional education process can be assisted greatly by proper use of new communications technology.

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Additional Reference

The Librarian's Role as an Educator in the Production of Non-Print Materials

CHARLES J. McINTYRE

As the title indicates, this paper is concerned with the librarian’s role in producing A-V materials. Implicit in the topic is the presumption that the librarian is or should be considered as a partner in the production of materials for the non-print technologies. The accuracy of this presumption is scarcely self-evident—not to this writer; not to other specialists with a clear role in audio-visual production; and by no means to all or, it would appear, very many librarians.

Let us, therefore, first examine traditional relationships of librarians to audio-visual materials, certain extensions or exceptions to these relationships, some controversies surrounding them, and some possible new roles for librarians.

The librarian, as traditionally and still quite generally perceived, selects, collects, classifies, catalogs, stores, and disseminates materials that are judged to be of concern to that segment of the population which uses library service. Certainly to many librarians, but by no means to all, these “materials” are assumed to be only those available in print form. Materials produced by other than print technologies do not generally, to this group of librarians, belong in a library.

Another numerically significant group of librarians has made the transition from print to other technologies and is more or less hos-

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* The admittedly awkward expression, “non-print technologies,” is used to describe materials generally classified under the audio-visual rubric such as film, recordings, audio tape, and the like; television and videotape; programmed instruction (which may be in print form but derived from pedagogy and psychology); programs for computer-assisted instruction; and learning carrels (for which the materials may be standard A-V but with a more sophisticated retrieval system). This brief list is hardly exhaustive.
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Pitable to a broader range of materials. Commonly, such materials may include films, phonograph records, audio tapes, and other "audio-visuals." Librarians who maintain these materials in their collections have recognized the importance of information which can be stored and retrieved from non-print sources. The inclusion of non-print materials is a logical extension of the general role of the library as traditionally conceived.

Typically, librarians in this second group, whether wholly print-oriented or accepting some responsibility for housing traditional audio-visual materials, have very little concern for the production of general materials, although they may, as teachers of librarians, use any of the technologies, or they may produce a wide range of instructional materials about the library. Examples of the latter applications can be found in the ALA Bulletin for May, 1966.¹

Librarians in this large group, however, do not seem to consider that they have any educational role in the production of materials—print or otherwise—for the other disciplines. They would not see any part for themselves in developing a book or article about botany, for instance, and similarly would take no part in producing a film or audio tape on that subject. For this group, which probably includes a numerical majority of librarians and libraries, the librarian has no significant role as a producer of materials, except possibly of those directly related to his own specialty.

In view of the complexity of librarianship, even when it does not include a role as producer, librarians may be quite right in rejecting that role. It may very well be that to assume responsibility for the production of materials would be to extend the librarian beyond his reasonable capacity as a specialist in an already highly specialized field.

Despite what many believe a reasonable limitation on librarians in refraining from a role in the production of materials, some libraries are assuming this role, and recent literature suggests the future will see it extended.²

A notable example of a library which has assumed responsibility for some materials production is the Audio-Visual Center at Purdue University under the direction of John H. Moriarty. In addition to having a collection of audio-visual materials produced elsewhere, the Center itself produces films, slides, film strips, and audio tapes, along with correlated print materials, and provides facilities for their use. Furthermore, there is within the unit a competent research staff which
studies the effectiveness of some of the programs produced. The non-print services at the Center are not comprehensive in that they do not, for example, include a television unit nor any current plans for computer-assisted instruction. Although this lack of comprehensiveness may be partly the result of internal vested interests—an extremely complex and difficult problem for universities—it also appears to be partly the result of the pedagogical conviction, on the part of the Center’s leadership and staff, that the Center should deal with materials which the individual student or professor can personally use or manipulate. Although such a philosophy rules out (for the present) some technologies such as television, it is entirely consistent with the spirit of a library.

Probably much more than a mere "straw in the wind" is the recent attention that has been given to the concept of instructional materials centers. Such centers very frequently are basically print-oriented libraries in the traditional sense, but with the highly significant difference that they will both house and produce materials. Thus in *The School Library: Facilities for Independent Study in the Secondary Schools*, a report issued in 1963 by the Educational Facilities Laboratories, one finds provision for the production of graphics, records and tapes, motion pictures, and television.

If librarians accept the concept of a library as a comprehensive materials center with technical facilities for materials production, they will have to prepare themselves to assume responsibility for the instructional effectiveness of that which is produced. In general, it appears that most planners of instructional materials centers do not yet quite understand the implications of this fact.

The instructional materials center concept brings what used to be a library of print-oriented materials into articulation with facilities for preparing as well as disseminating materials of all kinds. The purpose of these materials is conceived as being primarily for instruction, usually of a rather systematic nature, though one can imagine them being for research, general education, or even entertainment—in the sense that reading a book may also be entertaining. Instructional materials centers in libraries bring us to the threshold of a "great leap forward," strongly impelled by a logical analysis of the situation, into a total service of learning resources.

Learning materials and media, including print-oriented ones, are frequently best used in some optimal combination. It follows therefore that pedagogical and psychological analysis of learning tasks is needed
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before instructional media can be designed for various aspects of these tasks. It follows further that all significant media should be available for use, and used according to the manner in which the instructional characteristics of the media relate to the instructional task and without reference to particular prejudices or enthusiasms of the staff.

The relative efficiency of various instructional resources in terms of teaching effectiveness will depend upon the manner in which the materials are prepared, presented, and used. Again, it follows that pedagogical and psychological analysis is required and that systematic research involving careful quantifiable evaluation is essential.

Thus the instructional materials center has implicit in its assumptions, but rarely made explicit or adequately planned for, not only the full range of instructional technology as techniques but, much more importantly, the underlying bases of psychology, pedagogy, and psychometrics. Without these “instructional technology” is likely to be a collection of gadgets. This concept was strongly implied by several speakers, notably C. R. Carpenter and C. Walter Stone, at a national conference held in May, 1963, on the implications of new media for teaching library science.

Rather elaborate plans for institutionalizing much of the learning resources concept, although weak in psychology and measurement, were highly publicized during the planning phases of Florida Atlantic University at Boca Raton. It is not clear at this time to what extent the announced plans are to be implemented, although it appears that much of the plan has been sharply reduced, at least for the present.

Another development of the same concept is being institutionalized rapidly at the Urbana and Chicago campuses of the University of Illinois. As a concrete example of the logical extension of an instructional materials center into a more nearly complete facility for providing instructional resources, consider the organization of the Office of Instructional Resources at the University of Illinois at Chicago Circle. It is planned to have the following functional groupings: (1) the Instructional Systems Group, which has the over-all function of designing strategies and developing techniques for applying psychological principles of learning to instructional programs, and (2) the Production and Services Group, which is charged with the responsibility of insuring that instructional strategies are carried out through well-planned and well-executed media production services. Note that the Production and Services Group provides the services frequently.
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associated with an instructional materials center, while the Instructional Systems Group is concerned with instructional design and evaluation. The latter service is frequently lacking in an instructional materials center.

The Instructional Systems Group includes the following divisions:

1. Course Development: Helps the faculty redesign courses by a procedure which involves carefully defining specific objectives, analyzing the structure of the discipline, devising instructional grouping and activities, selecting teaching methods and media, realigning personnel and material resources, and cooperating in the production of materials and evaluation instruments.

2. Programmed Instruction: Assists faculty members in writing programmed instruction for academic courses and in locating and using programmed materials from outside sources.

3. Learning Evaluation: Assists faculty members with test scoring, item analysis, data interpretation, test construction, and information about standardized subject matter tests.

The Production and Services Group includes the following divisions:

1. Television: Produces and distributes television presentations, and supports other uses of television in connection with departmental teaching activity.

2. Audio-Visual: Operates a library service for scheduling and rental arrangements, as well as for providing information about sound motion pictures, filmstrips, slides, and audio materials, and also operates a rapid service "do-it-yourself" facility for making slides, overhead transparencies, and handouts. This Division also records lectures and discussions on audio tapes, duplicates audio tapes, and operates and maintains a wide variety of projection and sound equipment.

3. Graphic Arts: Establishes a high level of design throughout all areas of instruction and the university academic environment by making finished art work for television-projected media; designing faculty publications, instructional exhibits and devices; and constructing models, devices, and exhibits. The Graphic Arts Division also contains a photographic department which provides a comprehensive photographic service for the campus, including still- and motion-picture photography, processing, and printing.

It is anticipated that as the technology develops further, provision
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will be made for computer-assisted instruction and dial-access learning carrels.

The foregoing discussion should have made it clear that a complete learning resources center will require, in addition to the usual specialists for a conventional library, the following kinds of specialists: psychologists concerned with learning research and measurement; television directors, engineers, and other technicians; graphic artists; photographers and photographic technicians; computer programmers; and instructional programmers. Many of these specialists require careful selection, premium salaries, and optimum working conditions. They use costly and complex equipment. Their operating expenses are high. If an institution is to have such an organization, it must be managed carefully in order to assure internal effectiveness and meaningful articulation with the institution it serves.

Should such an organization be related to the library? Very likely, because it is an essential extension of the fundamental print-oriented learning services of the library. Students and faculty should find in the center provision for the broadest variety of instructional needs without consideration for the technology upon which it is based or the manner and place of its preparation.

Who then is to administer, plan, and supervise such a service? At Florida Atlantic University, the principal administrator was to be a media-minded individual with various specialists, including librarians, serving under him. This relationship did not last. At the University of Illinois at Chicago Circle, the Office of Instructional Resources is in the library building and articulates closely with library activities, but it is not part of the library. Its director reports to the Dean of Faculties, as does the director of the Library, and the two budgets are quite separate.

Although the question transcends the old argument of the audiovisualists who typically have not wanted to serve within library organizations, reasons for rejecting library control are cogent and should be considered. Audio-visual specialists complain that librarians—or many of them—are so print-oriented that in the inevitable struggle for space, staff, and operating budget, books always come first and what is left goes to A-V. That this is not always true is demonstrated by the fine Audio-Visual Center at Purdue, previously mentioned, but it does suggest that many librarians are wholly unfit, by reason of their predominant interests, to direct a comprehensive instructional resources facility.

The fact appears to be that, at the present time, no discipline is
preparing individuals to assume leadership of a complete instructional resources center. Indeed, the few who are now in these positions of leadership come from a variety of academic and professional experiences and are essentially self-educated for their present tasks. They are probably all only more or less adequate, considering the magnitude of the task. Indeed, no systematic analysis of the task or of its requirements exists. A few institutions have developed programs for instructional technologists which are strong in technology but relatively weak in psychology and the graduates are entirely unprepared in librarianship. Graduate schools of librarianship, on the other hand, sometimes give a smattering of psychology and an introduction to audio-visuals, but their graduates also are quite unprepared for this new specialization.

In summary, one can say that a librarian, because the library is so central to the educational process, should be prepared to function as an educator in the production, most broadly speaking, of materials for the non-print technologies. But he is not being prepared to do so at the present. Conversely, psychologists, audio-visualists, and instructional technologists are usually inadequate in librarianship, and are, therefore, not properly prepared for these important leadership roles. Thus it appears the field is wide open for enterprising colonization and probably will be occupied by those who get there first with the strongest claim to title, that is, those who are prepared to render the required service.

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ADDITIONAL REFERENCES


The Selection, Processing and Storage of Non-Print Materials: Aids, Indexes and Guidelines

WILLIAM J. QUINLY

Within the next decade, library service should undergo the most spectacular transformation it has experienced since the invention of the printing press. Many libraries have already begun in earnest a transition from the distribution of the printed page as their primary task to the provision of computer display and printout services. Instructional and documentary films, phonodiscs, and pre-recorded tapes are standard fare in educational libraries, and some libraries have even gone so far as to establish Telex (Western Union) or TWX (Teletypewriter Exchange System) networks which use teletypewriters as a means of linking libraries together for long-distance communication in order to expedite inter-library loan or computerize materials in anticipation of beginning a data bank and participating in a data transmission network. Nor will it be long before computer terminals and graphic transmission devices have become as familiar as check-out desks and card catalogs, or before data networks are in full operation and library service has been extended directly into the home through dial-access information retrieval systems, both audio and video. Some library patrons will be able to have access to the facilities of their library and national resources directly from homes and offices.

Before the turn of the present century, it is possible that the local or institutional library as we know it now will no longer exist. It will have become a switching center on a vast information network and will be capable of providing a hard copy computer printout of any document, of receiving and transmitting both audio and video

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signals. This library of the future will be located in a building which incorporates a large area for sophisticated computers, flashing lights, and remote terminal stations with a smaller room for citizens who still enjoy the inherent pleasures of browsing through bookstacks.

Thus, as libraries evolve from repositories of printed materials into learning resource centers offering both book and non-book materials, many librarians will increasingly be responsible for learning and handling the intricacies of educational media. Although there is an affinity between librarians and media specialists, the librarian is armed with comprehensive book lists, definitive bibliographies and a wealth of experience, while new media specialists often appear lost in an uncharted wilderness. There are no inclusive listings of available materials, few critical reviews and even less professional literature about selection, processing, and dissemination. It is ironic that the availability of selection tools is in inverse ratio to the cost of the materials.

The Educational Media Index, a heralded as a complete resource guide for all media, was not continued after its disappointing debut. There are, however, definite plans for reviving this publication in a computer-based format, and a first by-product of this work, an Index to 16mm Educational Films, has been issued by the National Information Center for Educational Media, a new organization affiliated with the University of Southern California. Meanwhile, the Audio-Visual Equipment Directory, published by the National Audio-Visual Association, is useful since it lists the products of all major manufacturers of audio-visual equipment and accessories, with specifications and sources.

Most information on currently released educational films comes directly from producers. The Landers Film Reviews provide substantive critical reviews, while the Educational Film Library Association cards, which are sent out monthly to members, have a very wide coverage. Although most film producers allow prospective purchasers preview privileges, the subject specialists who should do the previewing are not always readily available. Public libraries inaugurating a film collection should consult the ALA's Films for Libraries, and the recommendations of metropolitan libraries for help in setting up their basic collections. However, it is more difficult for college and university libraries to begin such collections since no lists of recommended acquisitions are available. Most college and university libraries use circulation statistics to guide their acquisition policies, but even this
information is not generally circulated. However, Illinois, Indiana, Syracuse, Michigan and Florida State Universities do publish catalogs and these would be the best guides to beginning an educational film collection.

Eight mm. single-concept or brief films are now being introduced into the library field. Supplementing these silent films are longer cartridge films with optical or magnetic sound and the less popular 8mm. copies of full-length educational titles. The Technicolor Corporation publishes the most comprehensive list of 8mm. producers.8

There are both inclusive indexes and critical evaluations to help in the acquisition of phonodiscs and pre-recorded tapes. The Schwann Long Playing Record Catalog6 provides a complete listing of commercial discs, and the Hi Fi/Stereo Review's annual “Basic Repertoire”7 is one of the more attractive listings of selected music on both records and tape. The Harrison Catalog of Stereophonic Tapes8 lists all currently available professionally produced tapes. The National Center for Audio Tapes at the University of Colorado, Boulder, is the largest source of non-commercial educational tapes. This collection of materials gathered from educational sources is available through most state tape libraries. The Audio-Visual Equipment Directory2 lists the products of all major manufacturers of audio-visual equipment and accessories, with specifications and sources.

One of the major bottlenecks in getting educational media from the producer to the patron has always been the cataloging and catalog production processes. For instance, material which has been rushed to market by the producer is frequently permitted to languish in the domain of the cataloger. Furthermore, the majority of audio-visual specialists have fallen into the practice of cataloging their own material, duplicating the almost identical efforts of other catalogers. Although Library of Congress cards are available for films, filmstrips, and phonodiscs, they are not used by the majority of media centers. In most instances the cards, admittedly, are not available for some time after the material has been released, and even then they frequently do not contain the information most media specialists consider necessary.

It is a hopeful sign in speeding up the delivery of media from the producer to the patron that libraries are now availing themselves of electronic typesetting and computer tape storage systems which are faster and more flexible than keypunched cards and standing type. The electronic typesetting system of catalog production, now being
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used by seven major film libraries, emanates from the facilities of Perry Publications, West Palm Beach, Florida. Here, catalog information is fed directly from typewritten pages into the computer through a Retina Reader, which eliminates the necessity for key-punching. From the information supplied in each cataloging entry, the computer develops a subject and alphabetical index which is then justified, hyphenated and relayed to the phototypesetters which prepare the copy at the rate of eight hundred words per minute. Thus, a task which formerly required several months of typesetting is now accomplished in a matter of hours. Since this electronic typesetting system sets four hundred pages of book-size catalog material in less than twenty minutes, it will be feasible to update film catalogs frequently.

By using the second system—storing catalog information on computer tape rather than in standing type—special subject supplements and other listings can be prepared in any desired format. A number of libraries are now using computers, rather than the conventional card files, to prepare subject catalogs of their collections. When using this system, libraries need only list the titles in their collection and let the computer prepare their catalogs. Computer tape storage is also the first step in the establishment of a data bank which will permit an immediate response from any remote computer console regarding any medium.

As they learn of these new systems, an increasing number of centers are turning to computers to expedite the booking, invoicing and cataloging of audio-visual materials. For example, Syracuse University has developed a state-wide computer-based film library network which permits that large library to serve as the backup for the local and regional libraries. When the desired film is not available from the local or regional library, the computer requests a print from the Syracuse Library. The film will either be booked on the date requested or the patron informed of the first available date.

To coordinate the several efforts in this direction, Anna L. Hyer, Executive Secretary of the Department of Audiovisual Instruction, National Education Association, organized a Task Force on Computerized Booking and Cataloging of Media to develop rules for the cataloging and computerization of media information. The suggestions of this group are now being reviewed by the several subcommittees and will soon be shared with interested groups. Once rules have been adopted, it will be possible to share booking and cataloging
information over data networks in order to improve utilization and eliminate unnecessary duplication of effort. It is hoped that this will help offset some of the cataloging problems discussed in Jay Daily's article in this issue.

Since new innovations are so frequent in the educational media field, storage and dissemination areas must be especially flexible. In designing facilities, the librarian must bear in mind that regional and nationwide data networks are fast approaching realization. The Inter-university Communications Council (EDUCOM) is working toward the establishment of an EDUNET connecting the educational resources and data banks of the nation. And yet, much current library construction does not make provision for the handling of new media resources already available and blandly ignores the telecommunications developments which are certain to become commonplace within the next decade. Stephens College Library is a notable exception; it has provided raceways in the floor of its new building which will permit the structure to be adapted to whatever technology may develop. Thus, libraries must be planned for the future while still meeting the storage and retrieval requirements of the present.

Most audio-visual materials are stored by type and size, and shelved either by accession or Dewey number in specially designed cabinetry. Commercially made storage facilities are generally superior and less expensive than prototypes constructed by building custodians. The arrangement by Dewey is a carry-over from book librarianship and is especially cumbersome in handling media. Books may be examined in the stack area, but media must be used with the aid of projection or listening devices, so that shelving by subject loses much of its seeming advantage. No improvements in the physical retrieval of materials are currently being developed, as far is known, and an accession number system is much simpler for the average layman to comprehend and also gives some indication of the age of the items.

Temperature, humidity and dirt are of major concern when planning for the physical well-being of audio-visual materials. These materials should never be stored in basements or other areas likely to have high humidity or in locations which tend to become unusually warm. Radiators, steam pipes and hot air registers all create problems. Film and equipment rooms should have filtered air whenever possible, with the humidity 40 percent at a temperature of 70 degrees. As there is an inherent dust problem with concrete floors, they should be sealed, painted or covered with tile or carpets. Frequently
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used films should be stored vertically in metal or plastic cans; films in long-term storage should be maintained at 50 degrees with the reels stacked horizontally, never more than six or eight high.¹⁰

Pre-recorded audio tapes should remain magnetized unless they are erased by magnetic means. They should not be stored in the vicinity of heavy wiring, machinery or in cabinets with magnetic door latches. Occasional playing of stored tapes will improve their storage characteristics, and tapes which have been in storage should be rewound before being played. Polyester tape is less likely to be adversely affected by heat and humidity than tape with acetate backing. High temperatures seriously increase the printing effect—the transfer of magnetic effect from one layer to another. Tapes in long-term storage should be placed in a can sealed with plastic tape, although tape exposed to extreme temperatures or humidity can usually be restored by being exposed to normal conditions for sixteen to twenty-four hours. It is usually not necessary to clean magnetic tape, although care should be taken to keep the heads, capstan and tape guides of the recorders clean to assure a longer life for the tapes. Audio tapes subject to heavy use should be recorded on the new sandwich tapes which have a layer of plastic over the iron oxide to protect the tape against wear.

The first distribution system for the transmission of pre-recorded tapes was developed by the Louisville Public Library using leased telephone lines. Since that time, several libraries have developed dial-access information retrieval systems which permit their patrons to select both audio and television programs from telephone terminals in remote listening carrels in the library. This service may also be designed to interface with the local telephone company in order to make pre-recorded audio tapes available to the general public.

The number of tapes that can be played simultaneously is determined by the number of tape recorder tracks available. Ampex has developed the “Random Access Audio System” which can provide a maximum of 224 master programs of fifteen minutes each, available with a maximum delay of one minute. When a program is dialed, the high speed duplicator records the program on the tape unit in the individual carrels.¹¹

The most recent innovation in the media field is the portable videotape recorder which has already become popular with schools and is gradually invading the home market as its price comes within the consumer budget. The videotape recorder will begin to compete with
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the home movie this fall when it appears with a new purse-sized camera and color tape. As these units become adjuncts to the home television set, patrons will soon be requesting videotapes in addition to 16mm films. A most vexing problem with videotape is that recordings made on one manufacturer’s equipment cannot be played on the equipment of another manufacturer. With only a few of the brands is it possible to record a tape on one machine and play it back on another from a different manufacturer. The need for compatible equipment is critical, but there are no indications that it will be immediately forthcoming. With the present equipment, however, libraries can develop their own files of local material, oral history interviews, and similar resources.

In addition to the audio and video distribution systems, several graphic transmission systems have been introduced which will have a profound effect on the sharing of library resources. Xerox, Alden and others have announced the availability of equipment which will transmit graphic images by voice-grade telephone lines. However, most of these systems require that copies be made of the pages to be transmitted. The ITT Videx system permits photographs to be taken and transmitted in twenty to forty seconds, depending upon the quality desired, and audio conversations to take place between picture transmissions. RCA is currently testing a device through which the home television set acts as the receiver for any one of four simultaneous transmissions of graphic material which is reproduced by electrostatic equipment.

Most librarians now realize that they can no longer hope to find stack space for the endless stream of publications, much less for the quantity of new media which is becoming available. Therefore, they must find some system of unlimited storage and immediate retrieval. Microfilm, microfiches, microprint, videofiles and computer printouts will become a part of every librarian’s experience. Innovations such as the CAI “Walnut” system which permits microstorage of almost a million documents with retrieval in five seconds are changing our entire concept of document storage.

Every man must have immediate access to all of man’s knowledge. Although the task is overwhelming, the considerable duplication in research, the lack of communication, and the dearth of understanding must be eliminated. Some of the problems of the next decade are already obvious. Most libraries, librarians and media specialists are not prepared for the computer era. Automation will impose a greater re-
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responsibility on the professional librarian. He will be called upon to organize information in a far more exacting manner than ever before.

There will also be personnel problems. Some librarians will miss the personal contact with their patrons, the joy of presiding over a large room filled with studious readers, and the contact with books. They may resent typewritten inquiries from a computer console. Many others will have a natural reluctance to handle apparently exotic computer hardware, even though women in their household tasks may operate far more awesome controls. But the purpose and function of household devices are understood and there is no fear that they might share information gained from us with some unknown audience. However, since today we access any one of several million telephones through direct distance dialing, it is most likely that computer terminals will be readily accepted in libraries, offices and homes.

There will also be changes in format. Neither space nor available monies will permit continued storage of knowledge in books accessed through catalog cards. A Time article on libraries reported that Yale would need eight acres of floor space by the year 2040 if they were to continue using the obsolescent card catalog.16 Sixteen mm. film and videotape may well be replaced by videodiscs—disc-shaped devices that can play a thirty-minute color program through a home television set. Furthermore, library buildings must be designed to accommodate change.

These new media and the demand for knowledge will require new concepts of service. Some libraries must be staffed around the clock to provide information, to send and receive the information being transmitted during the night when network rates are less expensive.

The future for librarians willing to grow with their profession is bright.

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ADDITIONAL REFERENCE

The Selection, Processing, and Storage of Non-Print Materials: A Critique of the Anglo-American Cataloging Rules as They Relate to Newer Media

JAY E. DAILY

There is general agreement among librarians that, despite the etymology of words which describe their profession, librarians now are responsible for collecting information resources regardless of form. Unfortunately for the exercise of this expanded responsibility, non-book materials are not controlled nearly so well for selection purposes as are books; they should not be treated (as they so frequently are) as a kind of sub-book for cataloging purposes; nor can they be stored and preserved as easily as printed materials in the traditional library building. Thus, non-book materials, especially those in non-print form, have come to represent a special concern in most libraries and must be given extra consideration.

It is the main purpose of this article to consider problems of processing non-book materials and, in particular, to comment on the adequacy of the new Anglo-American Cataloging Rules from the viewpoint of larger public and university library collections.

One clear indication of the growing importance which non-print media have attained in libraries may be seen in the new Anglo-American Cataloging Rules. All of Part III, from pages 258 to 342, is concerned with non-book materials and provides detailed rules for both entry and description.

Whatever criticisms may be leveled at the new rules, one must concede at the outset that, when they are viewed retrospectively as a
summary, they are superior. Unfortunately, they do not yet look forward to what must be done as libraries utilize automation techniques in more and more of their technical processing. For instance, the recent work completed by Theodore Hines points up the need for a radically different approach to the whole cataloging function from basic bibliographic description to arrangement of entries in a file.

A major question concerning non-book materials is whether card files should be maintained as guides to such materials, with the possible exception of phonorecordings of literary works. Non-book materials, regardless of kind, are usually housed in locations separate from book collections. In the author's opinion, even long-playing records will fare badly when placed together on shelves with books. And no one is likely to advocate that reels of motion picture film should be stored with books even though their specific content may, on occasion, relate directly to the subject of a given play, short story or novel. The best solution then seems to lie in the creation of one or more special new media catalogs which should be revised frequently as collections change. Another solution sometimes proposed is to file cards describing non-book materials directly in the public catalog. But the problem here is that in a large file such cards will be found only by accident or after training in where to look, unless printed on colored stock or otherwise specially marked.

The rules for cataloging motion pictures, set forth in the Anglo-American Code on pages 282 to 293, do take into account the special character of film collections by providing for entries under title (Rule 220) and even go to the point of supplying a title when one is lacking (Rule 220-B). Provision is made for cataloging two parts of a whole work (Rule 220-E), two separate works on a single reel (Rule 220-D), and also for the interesting case of cataloging films in a series. Series are to be cataloged under the latest title (Rule 220-C) if the title changes while the series is being issued, or during the life of a continuing series such as newsreels. Added entries can be made freely by following Rule 221.

Title frames are considered the source of a title. But, if this is lacking, any descriptive materials available may be used (Rule 222), and separate entries can be made “relating to production, release, and date of the film.” The entry is also supposed to contain descriptive information (which the rules call “physical description” about the film) including its length (or running time), whether the film has been produced in black and white or in color, and whether it is a
sound or silent film. Even filmstrips are so described, especially when they are accompanied by a phonorecording or audio tape. Series notes are to be made as well as additional notes prepared to indicate whether special equipment is required in order to project the material. Rule 226 provides for notes showing related materials, change of title, other versions, and source material.

Thus, a fairly elaborate description follows the physical description but precedes what is the most characteristic and necessary difference between catalog information developed for films and that prepared to introduce books. Because of the difficulty in obtaining information about a film, it is sometimes necessary to write a summary of its contents. This summary can be as brief or as long as needed when it is to be published in a book catalog, though it should, as a matter of convenience, always be explicit and concise. On cards, however, any lengthy description is likely to get lost or be scanted to fit the card or, on the other hand, expanded because another whole card is available.

Finally, in larger libraries films are not yet used as books are used. Generally speaking, they are lent for group or class presentation, and program chairmen, teachers and others who arrange film loans need convenient means of selecting films but little more. The same automated typewriters which produce punched cards (usually edge-punched) can be employed for making entries, and any simple indexing method can be used to cut mimeograph stencils or prepare multilith masters. A significant part of the smaller film collection is usually rented, and a continuing descriptive list of films on loan is handy. In any case, there is no need to anticipate more difficulty in preparing a booklet than in preparing a card, possibly less.

Library of Congress cards do not represent any appreciable convenience, even though it is no great chore to obtain a film card order number. The Library of Congress is no swifter in cataloging films than it is in completing other forms of cataloging and, in any case, the information would have to be copied in preparing it for a book catalog.

The Anglo-American Cataloging Rules do not treat phonorecordings as extensively as films. Problems of entry are dismissed cavalierly as being handled by the rules provided for entering the visible form of a work. This assumes the work has a visible form. But not all phonorecordings do, nor should characteristics of phonorecordings be confused with those of books. The rules for entering music are serviceable for printed compositions. But phonorecordings may well re-
quire important new elements such as information about a performer or performers, and often about an occasion as well. To omit consideration of these is to omit vital data concerning the usefulness of a recording.

In addition, phonorecordings do not exist necessarily because there is a prior form of the work in print. The growing use of phonorecordings to record history as it flies past sometimes gives the form an importance beyond that of print. In the case of music, jazz cannot be said properly to exist in any printed form. Most jazz musicians are constitutionally incapable of playing a work the same way twice. They are in the position of artist-craftsmen whose etchings may exist in numberless variations without ever constituting an edition.

Finally, no larger library which maintains a phonorecording collection should follow rules so wide of the mark as those advocated in the Anglo-American Code. A library would do very much better to arrange a book catalog on the basis of the Schwann or the Harrison catalog listings. Entries should be kept brief, yet identify each recording precisely. The prime concern should simply be that of making a sufficient number of entries to identify the work for a user whose interest may lie in the performer, the medium, the work, its composer and/or the composer of words which accompany the piece, or even in the composer of incidental music which accompanies a spoken piece.

The tangled concept of main entry, confused as it is with unit entry and author entry, is of least service in cataloging phonorecordings. The peculiar rule which insists that music have a uniform title and that preparation for such an entry be made even if it is not supplied is of little service in music and of even less for phonorecordings. There is no reason why the entry should not be just as straightforward as possible, preferring the composer of serious music for a unit entry, the performer in the case of several works by different composers or for jazz and popular music, and the title of the recording for works by several composers played by several performers. Furthermore, while the performer is more important than the title of a work in folk music, putting the entry under title is important for all phonorecordings which tend to be identified most often by title.

Excepting literary presentations, there is little reason to clutter the main catalog of a library with the contents of a phonorecording collection. A separate catalog, most easily produced and kept in book form, utilizing automated typewriter equipment for its preparation,
Selection, Processing, Storage of Non-Print Materials: A Critique

can serve both to notify the public of new acquisitions and to prepare temporary cards. By keeping catalog entries simple, on edge-punched cards produced as a part of the accession process, the public can find the desired materials without having to fight its way through a maze of rules which assume that, in the words of the old George Price cartoon, "If it isn't Bach, to hell with it."

Special collections of phonorecordings reproduced on wire or magnetic tape and perhaps even stored in plastic cartridges (though the latter offer one solution to the problem of damage to phonorecordings) should also be stored and cataloged separately, as, for example, are collections of piano rolls and special collections of "non-processed" phonorecordings made for a particular collection. It is far easier to create a new book catalog for each special collection and to put one general card for the collection in the main catalog than to attempt to enter all the different forms of material following rules designed originally for books. As many subject headings as are required can be made for a special book catalog and copies of the catalog can even be produced and placed on sale if the library is unable to afford to give its copies away. Equipment to reproduce information is now too inexpensive and easily used to justify putting the community which a library serves to greater trouble than it already suffers. Certainly a library intending to set up a collection of phonorecordings should look elsewhere than in Chapters 13 and 14 of the Anglo-American Cataloging Rules.

Nor is much more help furnished by any subsequent sections. Chapter 15 is devoted to pictures and other two-dimensional representations. It begins with a statement that libraries which contain such collections may elect to treat them in various ways. Unless the painter or photographer of the picture is extremely important, it is always best to list a picture collection strictly by subject, working out those headings which would be most descriptive of the precise matter illustrated by the picture. The same holds true for picture collections which are utilized primarily for illustrating natural life or furniture or whatever may be built up from periodicals and retained in manila folders without mounting. Each picture should be chosen as much for illustrating a single item in the subject heading list as for any other feature. If any kind of cross indexing is made, a dummy picture can be placed in the folder or, in the case of a larger collection, each picture can be labelled on the reverse with an accession number. It is a very simple task to work out a coordinate indexing system using original
accession numbers. Pictures which are lent are best handled in this fashion and use of the accession number will provide an easy means of maintaining ad hoc circulation records. Copies of famous paintings are controlled best by listing them under the name of the artist, and each can be treated as a kind of “one-page” book, if so desired.

The goal in processing non-book materials ought to be ease and swiftness of handling without regard to “standard practice” as exemplified by arbitrary books of rules. This has always been the case from the time the first collection of recordings was begun in 1914 by the St. Paul, Minnesota, Library. Although the Anglo-American Cataloging Rules specify otherwise, those libraries which process non-book materials most successfully do so on a basis which serves a local public at least cost. Certainly the new rules do not constitute a code of law which must be followed simply because it has been issued. And, in the author’s opinion, it is most unlikely that there will ever be a means of dealing with non-book collections of any real size or importance without first developing a special means of control beyond what the Anglo-American Rules suggest. This was the case with manuscripts and with atlases, and the librarian is referred for help to the not-overlarge literature on the theory of classification (“theory” not “history” for much of what is pretentiously called the “theory of classification” is, in fact, mere history).

In conclusion, there are no books which tell a librarian precisely how best to process non-book materials nor which provide a better rule of thumb than the general one of treating each collection of non-book materials as a separate and special entity, the use of which is inevitably governed by the nature of the material itself. Nearly all large public and university libraries which have dealt with such special materials have “made do” with the combinations of systems for both processing and identifying which best serve local library needs. One thing is clear—the new rules of cataloging give no more help than did the old and should not be followed. What is needed urgently is the development and valid testing of improved methods, approaches one might reasonably have expected the new Anglo-American Cataloging Rules to propose but which are absent.

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Selection, Processing, Storage of Non-Print Materials: A Critique


ADDITIONAL REFERENCE

Oyler, Patricia. "The Concept of Main Entry as Applied to Musical Phonograph Records." Unpublished seminar paper for the Graduate School of Library and Information Sciences, University of Pittsburgh, 1967. [The author investigated the practices at the Carnegie Library of Pittsburgh, Cleveland Public Library, the Free Library of Philadelphia, and New York Public Library. She found that practices differed at each of these libraries, not only from the recommendations of the Anglo-American Cataloging Rules but from each other.]
Continuing Dilemmas Surrounding Media Rights and Regulations

FRED S. SIEBERT

The development and utilization of the new communication media for library purposes has produced a number of yet-to-be-solved problems in the field of rights and regulations.

Photocopying is already a standard library service. On the drawing boards are additional services made possible by the development of new electronic media. Other articles in this issue on “Newer Media” describe techniques of providing library service through existing or proposed devices.

This article will discuss problems which grow out of the ownership and uses of library materials as this ownership and these uses are adapted to emerging practice and service. The problems or dilemmas will be presented in four groups: (1) the problems of photocopying and microfilming; (2) the problems of performance, display, and recording; (3) the problems of transmission, both within a library and between libraries; and (4) the problems arising through the restrictions on derivative works.

Problems of Photocopying and Microfilming. At present both photocopying and microfilming are common library practices. There is a widespread opinion among much of the book-publishing industry that both these practices are illegal. The owner of a manuscript, article, pamphlet, or book takes the position that under our laws, both common and statutory, the original owner has the sole right to make copies. To photograph or microfilm is to make a copy.

The principal basis for the claim of the exclusive right of the owner to make copies is the Copyright Act (United States Code, Title 17). Section 1(a) of that Act provides that the owner of the copyright shall have the exclusive right “to print, reprint, publish, copy, and vend the

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Copyright proprietors, principally publishers, are concerned about what will happen to their market if photocopying is allowed to increase. They are afraid that the market for original material will become so small that they will have to cease publication. Eventually, they claim, there will be nothing left for the scholars to photocopy.

In a study sponsored by the National Science Foundation in 1963, investigators found that, under present practices of photocopying from scientific and technical journals, "economic damage does not exist in substance. It does exist in special circumstances, but in relation to the total picture, we do not consider it a major problem."  

A few types of library materials may be photocopied or microfilmed without infringing on the owner's rights. All uncopyrighted published material is in the public domain, and may be duplicated without legal liability. Materials which are not published and not copyrighted are protected by common law rather than by statute, and these may not be legally duplicated without the owner's consent.

It is also a generally accepted library practice to photocopy or microfilm excerpts from copyrighted works. The difficulty arises in attempting to define "excerpt." It is not uncommon for a publisher to insert a notice in a copyrighted work such as: "All rights reserved. This book may not be reproduced in whole or in part, by mimeograph or any other means, without permission in writing." The confusing phrase is "in part." There is no question but that excerpts from copyrighted works can be copied without liability in spite of the wording of the above notice.
Copying excerpts from copyrighted works is based on the doctrine of "fair use" as developed by the courts in their interpretations of the rights protected under the Copyright Act. Unfortunately, or perhaps fortunately, there are no judicial decisions applying the fair-use doctrine to library uses or library copying. Exactly what an "excerpt" is continues to be a matter of debate. No adequate definition, only examples, of fair use can be given at this time. Copying a quatrain from a ten-quatrain poem would be fair use. Duplicating three pages from a 250-page book would not be a violation. To copy the chorus of a song but not the verse would constitute an infringement. It would also probably be an infringement to duplicate an entire chapter of a ten-chapter book.

An exceedingly difficult dilemma arises when a library attempts to photocopy or microfilm a copyrighted graphic which constitutes a unit in itself such as a picture, drawing, or map. Clearly the doctrine of fair use as applied to excerpts does not apply here. Whether the doctrine of fair use would permit copying of such complete integrated units as graphics is far from clear.

An entrancing problem arises in the application of the fair-use doctrine to excerpts from compiled or composite works. Is it fair use to photocopy a complete article from a copyrighted magazine or from an encyclopedia? To what extent can a component part of a copyrighted work be duplicated? Does the copyright on a book extend to the individual maps, graphs, charts, or pictures in the book? No authoritative answers can be given to these problems, nor does the proposed Copyright Bill offer any solution.

There is one bright spot in the new Copyright Bill (Sec. 108) which permits the copying of unpublished works either by microfilming or photocopying for archival purposes. The complete text of the section is as follows:

Sec. 108. Notwithstanding the provisions of section 106, it is not an infringement of copyright for a nonprofit institution, having archival custody over collections of manuscripts, documents, or other unpublished works of value to scholarly research, to reproduce, without any purpose of direct or indirect commercial advantage, any such works in its collection in facsimile copies or phonorecords for purposes of preservation and security, or for deposit for research use in any other such institution.

It was hoped that the draft of the proposed new Copyright Act would solve or at least clarify the photocopying and microfilming
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problem. Unfortunately, this has not been the case. The problem has been left exactly as it was under the present Copyright Act. It will probably take a few court cases to establish the boundaries of library photocopying and microfilming.

The Problems of Performance, Display, and Recording of Library Materials. Traditionally, not many problems result from using library materials in the form of performance, display, or recording but, with the development of expanded services and the introduction of new technical devices, dilemmas over such uses of materials are bound to become acute.

The present Copyright Act, as well as the proposed new Act, contains a provision limiting the right publicly to perform a copyrighted work to those who have permission or clearance from the copyright owner. In the present Act, this right is limited to dramatic, literary and musical works (Title 17, Sec. 1(c), (d), and (e)). Under the proposed Act, the exclusive performance right is extended to “choreographic works, pantomimes, motion pictures and other audio-visual works.” (S. 597, Sec. 106(4).)

The library of the future will undoubtedly engage in the distribution of dramatic, literary, musical and especially audio-visual works, in a form through which a “performance” may be undertaken. Recordings are a common example of this type of library service. Under the proposed Act, it would be an infringement to “perform the copyrighted work publicly.” (Sec. 106(4).) The definition of “perform” (Sec. 101) is “to recite, render, play, dance, or act it, either directly or by means of any device or process or, in the case of a motion picture or audio-visual work, to show its images in sequence or to make the sounds accompanying it audible.” A “public” performance is defined in the same section as “to perform or display it at a place open to the public or at any place where a substantial number of persons outside of a normal circle of a family and its social acquaintances is gathered.”

The problem is also complicated by the restriction on the performance of an audio-visual work which is defined as follows: (Sec. 101) Audio-visual works are “works that consist of a series of related images which are intrinsically intended to be shown by the use of machines or devices such as projectors, viewers, or electronic equipment, together with accompanying sounds, if any, regardless of the nature of the material objects, such as films or tapes, in which the works are embodied.”

To what extent can a library permit showings of copyrighted re-
cordings or audio-visual works in sequence either to individuals or a group of individuals? The answer is not clear.

The present Copyright Act places no restriction on the “display” of a copyrighted work, but the proposed bill gives the copyright owner of some types of copyrighted works the right to control the display of his work. The limitation on the public display of copyrighted works extends to “literary, musical, dramatic and choreographic works, pantomimes, and pictorial, graphic, or sculptural works.” (Sec. 106 (5).) To “display” a work is further defined (Sec. 101) as “to show a copy of it, either directly or by means of a film, slide, television image, or any other device or process or, in the case of a motion picture or other audiovisual work, to show individual images nonsequentially.” Again, “pictorial, graphic, and sculptural works” are defined (Sec. 101) as “two-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints, and art reproductions, maps, globes, charts, plans, diagrams, and models.”

What restrictions these limitations will place on libraries, and particularly on library use of the newer media, remain to be seen. However, it is clearly evident that these restrictions will curtail some of the present and future activities of libraries. The possession or ownership of a copy of a work no longer permits the not-for-profit public performance or display of the work. The prognosis is not bright.

Recordings, both disc and tape, are not now copyrightable under the present law, but the new law will undoubtedly extend protection to all types of sound recordings (Sec. 114). For libraries this means that they will not be able to duplicate or “dub” recordings without the permission of the proprietor of the original recordings.

The question of whether a library can build up a collection of recordings by taking them off the air is questionable. Such practice is probably illegal under the proposed copyright Bill, especially if these recordings are to be made available to the public.

“Sound recordings” are defined in the Bill (Sec. 101) as “works that result from the fixation of a series of musical, spoken, or other sounds, but not including the sounds accompanying a motion picture or other audiovisual work; regardless of the nature of the material objects, such as discs, tapes, or other phonorecords in which they are embodied.”

The Bill does not give the producer of the phonorecord the right to control performance; that still remains in the hands of the original copyright owner of the recorded material. Neither does the Act recog-
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nize any rights or control by performers who participate in the recording of the words or music.

With the elimination of the not-for-profit permission for performances, it will no longer be possible for the library to offer performances of recordings for its public. It is probably possible, although the Bill is not explicit, for an individual patron to choose recordings from the collection and play them for his own enjoyment in a carrel.

Transmission of Library Materials. The word “transmission” is new to copyright legislation, and as such it poses a number of problems not only for the current operation of the library but especially for the services which libraries are likely to develop through the use of electronic devices.

The foreseeable developments in library practices are summarized by Marke in his recent study on “Copyright and Intellectual Property”:

The growth of published information has fostered the invention of many new handling and searching techniques and concepts. Best known are the retrieval systems based on automatic machinery. In addition, there are imaginative new ways of listing titles (for example, permuted titles) of gaining access to the literature (citation indexes), of preparing abstracts or translations (by machine), of compacting the physical size of the record (microfilm and microfiches) of duplicating material.

The invention of the new retrieval methods is beginning to affect our traditional modes of communication. The traditional forms of the book, journal, and reprint may eventually give way to the machine storage of graphical and digital information and machine-generated copy. The technical publishing business may gradually be transformed into the information handling business in which the printing press as a means of mass communication of identical documents no longer plays a dominant role.

Under Section 101 of the Copyright Bill (S. 597), transmission is thus defined: “to ‘transmit’ a performance or display is to communicate it by any device or process whereby images or sounds are received beyond the place from which they are sent.”

There appears to be little doubt that the library of the future will “transmit” all types of information, printed, graphic, digital, and audio-visual, from one place to another. Much of this transmission will take the form of inter-library hookups, thus making available large collections of material to library users in geographical areas other than those where the material is stored.
Transmission systems today include the following: (1) broadcasting, both aural and visual; (2) closed-circuit transmission both aural and visual; and (3) computer transmission in the form of data-processing machines.

Libraries will probably not be deeply involved in broadcasting within the near future except as the producer of educational or cultural programs for the mass audience. However, all inter- as well as intra-institutional communication will be based on closed-circuit transmission.

The proposed copyright law as presently drafted makes no basic distinction between "open" and "closed" transmission. The draft provides (Sec. 110 [2]) that a governmental body or other nonprofit organization may transmit a performance of a nondramatic literary or musical work or the display of all types of works as a regular part of a systematic instructional activity. The transmission must be made primarily for reception in classrooms and "the time and content must be controlled by the transmitting organizations and 'not depend on a choice by individual recipients in activating transmission from an information and retrieval system or any similar device, machine or process.'" The above limitations apply to all types of instructional transmission, both open- and closed-circuit, and do not provide for any exemption from copyright limitations for library transmissions.

Under the proposed bill, a library which is part of an inter-library hookup could not transmit a copyrighted work electronically as an inter-library loan without securing permission from the copyright proprietor.

Such devices as teletypes, voice transmission, and facsimile could not utilize copyrighted material between institutions, and there is some question whether these devices could transmit copyrighted material within an institution. The Bill restricts the sending of copyrighted material "beyond the place from which they are sent." (Sec. 101.) Does "place" mean the actual sending room, so that a transmission to another part of the building would be a violation? Such limitations could have serious effects on the operation of a large library collection scattered over various parts of a building.

Derivative Works. A further dilemma facing libraries grows out of the copyright restrictions on "derivative works." The library of the near future will undoubtedly provide such services as indexing large quantities of material, abstracting, translating, and producing hard copies of such indexes, abstracts, and translations. Will it be necessary
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to obtain copyright clearance before a library can undertake any of these functions? The answers are not yet clear.

A “derivative work” over which the copyright proprietor has complete control is defined (Sec. 101) as “a work based upon one or more pre-existing works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a ‘derivative work.’”

The problem arises from the provisions of the proposed law which will give the copyright proprietor the right to control and license any “translation . . . abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted.” It would appear that the mere indexing of work would not be a copyright infringement. It is also possible that abstracting the work might come under the “fair use” exemption in the copyright law.

The most disturbing problem growing out of the limitations on “derivative works” is likely to arise through the use of copyrighted works in computers or data-processing machines. As the Bill now stands the copyright proprietor has the exclusive right to reproductions of his work for input or storage in an information system. It would appear that the translation of a copyrighted work into machine-readable form would also be an infringement.

The subject of computer uses of copyrighted material was discussed in the “Report of the Committee on the Judiciary of the House of Representatives”:

Thus, unless the doctrine of fair use were applicable, the following computer uses could be infringements of copyright under section 106: reproduction of a work (or a substantial part of it) in any tangible form (paper, punch cards, magnetic tape, etc.) for input into an information storage and retrieval system; reproduction of a work or substantial parts of it, in copies as the ‘print-out’ or output of the computer; preparation for input of an index or abstract of the work so complete and detailed that it would be considered a ‘derivative work’; computer transmission or display of a visual image of a work to one or more members of the public. On the other hand, since the mere scanning or manipulation of the contents of a work within the system would not involve a reproduction, the preparation of a derivative work, or a public distribution, performance, or display, it would be outside the scope of the legislation.

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Dr. Anthony G. Oettinger, president of the Association for Computing Machinery recently cited to the Senate Subcommittee on Patents, Trademarks, and Copyrights one example of how the proposed revision of the Copyright Act could threaten his own research. The proposed revision threatens
to cripple severely the very research and the very teaching necessary in order that the 'information storage and retrieval system or any similar device, machine or process' materialize fully, be understood, and be controllable. . . .

Under the provisions of the Bill as now conceived, I would have not only to acquire and evaluate materials but, in each instance, before experimenting with them, seek out the owner of a copyright, if any, make formal requests for permission to use the material, pay royalties if any are due, etc. All this before any material could actually be used and, in fact, before I could find out whether or not the material was useful! The delays, the frustrations and the chaos inherent in such a process now seem so formidable that if the Bill were passed in its present form I would be tempted to return to the safer occupation of copying out manuscripts with a goose quill pen.*

In summary, it should be apparent that libraries and library users are not receiving any special consideration either in photocopying, microfilming, performances, displays, or recordings, or in the transmission and computer uses of copyrighted materials. Whether these restrictions on library uses will cause serious financial problems, frustrate further research in communications technology, or curtail the expansion of modern library services remains to be seen.

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3. Re-introduced in the 90th Congress, 1st session, as S. 597 and H. R. 2512.
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<td>2 Junior College Libraries</td>
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<td>3 Library Service to Industry</td>
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