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ABSTRACT

Librarians are and will be using cable television technologies to enhance and extend their services. While questions remain in regard to the technology itself, the health and viability of the industry, and government policy, librarians are seeing cable communications as an opportunity to gain credibility and visibility, and also as an extension of the legitimate function of libraries to collect, store, and disseminate information. While the public library remains in the forefront at the moment, university libraries are beginning to use campus-wide cable systems, which are often interfaced with the commercial cable system in town. School media centers are also participating in cable activities, and special libraries are becoming repositories for video materials used by their companies for training and sales purposes. At present the public libraries, which stand to gain the most from cable communications, have the opportunity to participate, together with other groups, in educational and planning activities to insure a people-oriented cable system and to program to fulfill various information needs of the library's clientele. In the future, cable appears to offer an opportunity for electronic resource sharing at relatively low cost. (Author/LS)

THE STATUS OF CABLE COMMUNICATIONS IN LIBRARIES

Report on a CLR-Sponsored Study

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I. Introduction:

In the spring of 1973 I was awarded a grant by the Council on Library Resources to study cable activities in libraries. The reasons for my study were as follows:

1. While a number of libraries have been engaged in using cable systems for library purposes, no study has as yet been made of their activities; such a study is considered important to assess the current status of cable activities as well as provide some guidance for those just beginning.

2. Cable activities in libraries should be put into perspective with other library services, with the political and regulatory environment surrounding cable, and with library planning for the future.

3. The technology of cable and ancillary technologies should be studied to determine suitability for library purposes.

I planned to interview librarians, municipal officials, community groups concerned with cable, cable operators, and members of regulatory bodies to gain a broad view of the industry, as well as library applications. My original itinerary included cities in Canada; however, due to time constraints and an under-assessment of time needed to visit locations within the United States, I did not include any Canadian sites.

I began my travels in June of 1973 and concluded them in August of that year. A list of the institutions and cities visited follows:

Public Libraries:

San Francisco Public Library
Sacramento City-County Library
San Diego City Library
San Diego County Library (all Ca.)
Mobile Public Library, Ala.
Orlando Public Library, Fla.
Jackson Metropolitan Library, Miss.
District of Columbia Public Library, D.C.
Madison Public Library, Wis.

Cable Companies:

Berks Cable TV Co., Reading, Pa.
Mission Cable, Co., San Diego, Ca.
Warner Cable, Bakersfield, Ca.
ATC, Orlando, Fla.
Teleprompter, Mobile, Ala.
LVO Cable, Tulsa, Okla.
Teleprompter, Boulder, Colo.

Public Libraries (cont'd)

Milwaukee Public Library, Wis.
Minneapolis Public Library, Minn.
Hennepin County Public Library, Minn.
Denver Public Library, Colo.
Boulder Public Library, Colo.
Tulsa City-County Library, Okla.
Kern County Library, Bakersfield, Ca.

University Libraries:

Washington State University, Wash.
Oregon State University, Ore.

State Libraries:

Washington State Library
California State Library
Wisconsin Dept. of Libraries

Research Institutions:

Rand Corporation, Ca.
Institute for Communications Research, Stanford University, Ca.
Aspen Cable Workshop, Palo Alto, Ca.
Denver Research Institute, Colo.
Battelle Memorial Institute, Ohio
Center for Experiments in Television, San Francisco, Ca.
Mitre Corporation, Va.

National Meetings:

National Cable Television Association
American Library Association
Publicable, Inc.

Municipal Officials:

San Francisco, Ca.
Tulsa, Okla.
Boulder, Colo.
Sacramento, Ca.

State Officials:

Minnesota Cable Commission
Wisconsin Task Force on Cable Communications
Washington (State) Telecommunicatio Office.

National Agencies:

Cable Television Information Ctr.
Center for Educational Technology, HEW
Federal Communications Commission
Joint Council on Educational Telecommunications
Publicable, Inc.

Community Groups:

Video Access Center, Bakersfield, Ca
Video Access Center, Orlando, Fla.
Madison Citizens Cable Coalition
Model Cities Communications Center, Minneapolis, Minn.
Sacramento Educational Consortium, Ca
American Friends Service Committee, Minneapolis, Minn.
U. of Minnesota Video Center
Southwest Surburban Joint Powers
Community Meeting, Minneapolis
Input, Milwaukee, Wisc.

NOTE: Many other meetings and conferences were attended also; presentations were given at most. However, these were not paid for by CLR.

It has proven to be difficult to write this report, because it is almost impossible for me to separate those items of information gleaned from my travels from those acquired before or since. I have been so deeply involved with cable, both before and since the summer of 1973, that much information has come to me in ways other than those provided for by the Council grant. What emerges, then, is a far broader picture than that which could have been gained from the travels alone; nevertheless, the grant provided me with an opportunity to make an intensive study of those places which I visited. Another difficulty is that much of what I learned has already changed and I was not able, in all cases, to update my information; thus what is presented here is probably uneven in its timeliness.

I have already shared much of the information gained during my summer travels with others, both formally and informally. I have written a number of papers, which are cited in the bibliography, have participated in panels and made presentations at meetings, and have been able to utilize my knowledge acquired during the trips in responding to the countless telephone calls and letters which have come to me, asking advice and guidance on cable matters. Thus I feel that CLR's investment has been worthwhile; the information gained has been channeled where it was needed.

II. Video/Cable in Libraries:

What follows is a series of presentations centered around those issues which I had expected to study and some others which emerged during the trip. While I had chosen my sites carefully to reflect the full spectrum of cable activities, I found more information than I had counted on in several places, while others turned out to be disappointments. By arranging the material around topics, it is hoped that the presentation will be more cohesive than reciting findings sequentially, in the order of places visited.

1. The Public Library and Cable: While almost all of the libraries visited were engaged in producing or acquiring video materials, organizing the community for cable, and participating in planning, only three were actually cablecasting at the time I visited. I chose my group of sixteen libraries deliberately to reflect a variety of activities of which cablecasting was just one in order to show the wide spectrum of work that must precede utilization of cable. Their activities are presented in increasing order of involvement, beginning with:

a. Interest, but no activities as yet: I chose to visit the San Diego Public Library and the San Diego County Library, knowing that they were not involved in cable, though San Diego has the country's largest cable system (75,000 subscribers) which is heavily involved in local programming. During a meeting with chief librarians from both libraries and a subsequent presentation on Cable TV by me to a group of librarians drawn from the entire metropolitan area, a lively interest emerged. The recently formed San Diego Metropolitan Area Library Council appears to be a vehicle for library involvement with cable, yet I sensed reluctance to embark on such a venture when there appeared to be more pressing problems in need of solutions, such as eased interlibrary loan procedures and the like. Lack of financial support for video/cable activities appeared to be another limitation on the willingness of librarians there to begin working with cable system. The Mission Cable TV Company, on the other hand, expressed eagerness to work with librarians. There is some experience with cablecasting from schools; one school librarian at the meeting had just completed an addition to her library which would allow her to originate programming from her library.

It appears to be a matter of time until librarians in San Diego will begin to work with cable; the situation is certainly ideal insofar as reaching their clientele is concerned, since the cable company reaches a great many homes in all areas of San Diego.

b. Organizing the Community for Cable: A number of libraries are actively involved in preparatory activities. The Madison Area Library Council (MALC), composed of librarians in the Madison area, decided about two years ago to undertake a study of cable television in Madison. Out of this grew the Madison Citizens Cable Council, begun by librarians, some of whom still serve on the Steering Committee, and one of whom was, until recently, its coordinator. The Council's mission was originally stated as "providing education and information on cable television, and to maintain a continuing dialogue among Madison citizens and groups about how they can become involved in shaping a socially responsive and responsible cable system for the city through personal, community, governmental and business actions." Cooperation and coordination among cable operators, video groups, media interests and cable planning committees, provision of assistance as needed, and collection and distribution of information concerning cable connected activities of these groups was also planned. To learn about programming for the required access channels was another goal of the MCCC.(3) The Council has emerged as the central focus for cable activities in Madison, has helped to re-write the existing franchise, shaped state legislation, and worked intensively with community groups to help them in programming the available channels.

Workshops have been held under the auspices of the University of Wisconsin Extension Department, which has recently hired a full-time person, a librarian, responsible for planning all cable activities. Workshops were directed at librarians, municipal officials and community groups. And now that the cable system, being built while I visited, has been turned on, librarians and other groups are making considerable use of it. However, the Madison Public Library itself, while interested, is not directly involved in cable programming. A number of tapes were made by a young staff member of that library, but full committment to the idea remains uncertain. Considerable hesitation was expressed in terms of financial committment, and there appeared to be staff resistance to the idea.

Another concern expressed in Madison, as elsewhere, was that of control over the three access channels. The new franchise provides for an Advisory Board for each channel; how to remove this board from political influence in order to insure access to the channels by all who desire this appears to be a problem.

c. The acquisition of video equipment and software is another preliminary stage toward preparing for cablecasting. The Orlando Public Library, the Martin Luther King Library of the District of Columbia, the Jackson Metropolitan Library, Miss., Denver, Boulder, Tulsa and Hennepin County all had acquired equipment by the time I visited them. While the videocassette player in Orlando was used mainly for experimentation and was not available to the public, all other libraries were producing material as well as making it available to people visiting the library. The District of Columbia, Tulsa, Boulder, Denver and Hennepin County all had portable equipment which could be taken out of the library to make programs wherever events occurred. These libraries had videocassette players for

playback in the library as well. Video has proved to be a popular medium in most libraries; Boulder was taping City Council meetings and those of the local Zoning Board and found itself with a great many people watching playback of these tapes in the library. Hennepin County, in its new Southdale branch, integrated media of all types completely with its print materials and has constructed a special media desk, in which are embedded audio and video playback devices as well as viewers for filmstrips and super-eight films. While this desk was not yet in use while I was there, all other playback equipment was heavily used by both children and adults. All visual and audio material is either shelved along with print material or is displayed, (multi-media kits), on open racks easily accessible by all.

Denver used its video equipment for in-service training of librarians and for public relations. There were plans to tape a month-long Spanish-American festival mounted by the library, for playback in the library to those who could not attend. Videotaping was planned for other on-going library programs; a rich program source is available to any library which routinely tapes on-going events. This activity requires no special scripting, staging, or much preparation beyond having a technician with equipment present when the event occurs. A bank of programs is thus created which can be used later for cablecasting.

Several libraries were acquiring video software from other souces; a notable example is the Milwaukee Public Library which is building a store of program materials consisting of Public Broadcasting Service programs in cassette form, made available by the Public Television Library in Bloomington, Indiana under its special library-oriented "Watch-A-Book" program. Several libraries have made agreements with the PT Library to obtain 150 of the best in PBS programs and along with these, local programming tapes from their own ETV stations, thus tapping a rich source of software. In addition, Milwaukee is housing and organizing a collection of tapes created by INPUT, a local video access center. While I visited there, the young men operating this center were in the process of obtaining a grant to permit them to store their tapes in the library and have them cataloged and listed so that they could be made available to the the community. This appears to be an ideal source for video software; video access centers are there for community people, either to create their own tapes, or have them created, yet storage and dissemination are a problem for such centers. When the library is willing to take on this task, it has gained a program source, and the access center a means of preserving and organizing its tapes.

d. Policy Statements: Another level of cable involvement by libraries is represented by those which have developed a video policy statement, formally adopted by their Boards, and spelling out what the library role vis-a-vis video/cable will be. In this group, I found San Francisco, Boulder, Tulsa, Minneapolis, District of Columbia, Sacramento-City-County, and Natrona County libraries.

San Francisco is an interesting example of how such policy statements can be developed.(17) A Task Force on Cable was formed from library staff volunteers under the leadership of an interested young librarian, begun its work by educating itself about video/cable, and drafted a statement which was circulated to the administration and top staff for reaction. Re-written several times, it was then presented to the Board of the San Francisco Public Library which adopted it as official policy in February of 1972. Community organizational

activities developed in parallel with the formulation of the library's internal policy and resulted in the creation of an education cable task force as well as a coalition of community groups, all stimulated by the librarians' efforts. The city government was contacted next and an educational program was undertaken. The result of all these activities is that the young librarian who began the program within the library now serves on the Mayor's Cable Television Study Committee as sole representative for all city agencies. The library has achieved credibility and visibility in the process, an important by-product of such work, which I found almost everywhere, where the library had become involved with the community in an activist role regarding cable developments.

Another policy statement was developed by a staff task force appointed by the director of the Minneapolis Public Library. While he himself formulated a rationale for the library's use of a yet-to-be constructed cable system, his task force spelled out in great detail, and with cost figures attached, what kinds of programming the library might undertake, placing various activities in priority order. (9)

Other statements reflect a wide variety of approaches; all are similar in that they perceive video/cable as a unique means of reaching people not heretofore served by traditional library services. The role of the library as an information storage and dissemination center is seen as legitimately extending into the creation, collection and dissemination of visual media, including videotapes, and the cable system as a unique means of dissemination directly into a user's home as well as between branches and headquarters, which may serve as neighborhood viewing centers for those people who are not connected to the cable system.

d. Library Designation as Municipal Programming Agency: The next level of involvement for libraries is their official designation, by municipal authorities, as the administrative and programming agency for all city departments. Tulsa, Boulder, Memphis, San Jose, San Francisco and the District of Columbia either have been awarded the municipal channel or expect to when the cable systems begins operations. In the case of Boulder and Tulsa considerable sums of money have been appropriated from revenue sharing or other funds to plan, build, equip and staff a color television studio, housed in, and operated by the library, to produce all municipal programming. Equipment acquired is near-professional; technicians have broadcasting background, and additional staff has been hired to work with city officials, train them in programming possibilities, and help translate their ideas into the visual medium.

Some concern is being expressed by several librarians that this type of activity may endanger the traditionally neutral stance of the public library, and possibly result in its becoming a propaganda arm of the city government. Strict regulations and Advisory Boards are seen as answers to problems of this nature.

e. Library as Video Access Center: Another, very different kind of activity is presently being undertaken by the Memphis-Shelby County Library and Information Center which has received LSCA funds to equip and maintain a Video Access Center, physically located in the library. This Center will train community people to make their own programs for the public access channel and will support this activity with the provision of materials needed to support accurate information for community groups researching a local issue. In the absence of any video groups in Memphis, the library sees this as a legitimate library function. In contrast, the District of Columbia Public Library works closely and supportively with existing local video groups, avoiding duplication of effort, and sharing resources and expertise.

f. Libraries on the Cable: Finally, there are the three libraries which are actually cablecasting at the present time (there are quite a few others, but only three were visited).

The Kern County library was instrumental in helping to establish the local Video Access Center and is one of its heaviest users. It has recently acquired equipment of its own but continues to support and utilize the Center's facilities and services. Programs are cablecast regularly and a considerable bank of program tapes has been built. A problem exists in that the cable system serving the area surrounding Bakersfield is favorable toward public access and library cablecasting, while the city's cable system is not. Often a citizen of Bakersfield, having created his own programming, cannot view it because he lives in the city, rather than in the area served by the "willing" cable system.

Natrona County Library in Casper, Wyo.,and the Mobile Public Library have, of course, been amply documented in the literature, regarding their cablecasting activities.(5,6,8,12,16) I found in both libraries a strong committment to information services via cable; in both agencies cable activities were completely integrated into the day-to-day activities of the library and were not treated as something different or exotic. In Mobile, each department is responsible for the creation of a weekly program, which is produced in the cable operator's color studio, obviating the necessity for library-owned equipment. Reference service is provided to those people who telephone their questions to the library, when, in the judgement of the reference librarian, the information can only be presented in visual form and cannot be described verbally, (maps, diagrams, recipes, pictures of all kinds). The questions answered in this manner are relatively few, since the reference librarian prescreens them carefully to insure that only visual materials are presented over the cable system into the viewers' home.

Natrona County considers the Visual Reference Service a normal part of its information service division's work; all types of visuals are presented in answer to a patron's questions, including videotapes, film strips, short motion pictures, as well as the materials named above. All visual materials in this library are being transferred to 1/2" video cartridges which are suitable for self-service viewing in the library as well as cablecasting.

The library in Mobile is aiming toward programming 60 hour a week, while Natrona County has two library channels; one is used for Visual Reference Service and the other one for different kinds of programs. The cable operator turned over this second (local origination) channel to the library voluntarily, and is also giving his entire color studio to the library. Thus all local

programming will emanate from the library and the cable operator will do none in the future. The library will in turn provide equipment, training, and access to its studio facilities to the school system for educational cablecasting.

g. Library programming ranged from story hours, book talks, and other programs centered around print materials to public relations-type programming promoting existing library services and announcing new ones. This could be called the "let's get people in the library to read a good book" approach. Other libraries perceived their role quite differently; the creation and dissemination of new types of information was seen as a legitimate library function. Some of the more interesting applications here are the creation of visual history, an extension of the archival function which the library has traditionally assumed regarding local history. Interviews with outstanding citizens, in their own settings, with objects around them to better explain their specialties, were captured on videotape, to be added to the library's local history collection.(13) Meetings of municipal officials were routinely taped for archival purposes as well as playback in the library for researchers and interested citizens. Some libraries are beginning to establish video archives of tapes from local broadcasting stations, which constitute a rich source of local history.

Community events of all kinds were taped for playback and cablecasting, from well-known out-of-town speakers, to panels, and from local dance recitals to poetry readings. Innovative children's programs include the sixth-grade video club, established in a branch of the Kern County Library (Bakersfield, Ca.), with volunteers from the Video Access Center teaching the use of equipment, and facilitating the creation of programs by the children themselves. Topics ranged from Dracula (with a Spanish accent, since the branch is located in a Spanish-speaking neighborhood) to news shows, in which eleven-year olds intelligently discussed such topics as the energy crisis and Watergate.

Films are heavily used by the Mobile Public Library; each department in that library creates a weekly program centered around a current or historical topic, utilizing films, discussants, and comments from library staff. Mobile's "Yesteryears" program draws heavily on a unique slide collection donated to the library, which shows historical buildings and sites, some of them no longer existing.

Informal education for adults is the goal of much library programming; cultural and educational material is either created or acquired from other sources. Through the use of a film chain, films can be shown over the cable system; in other cases, such as Natrona County, all material is being converted to video cartridges, as was mentioned before.

Denver and Tulsa are two libraries where this type of activity is very much part of the day-to-day work of the programming staff. Denver has a number of programs, from CLEP to "On Your Own", and from "Catalytic Synchronisms" to "Right To Read." While there is no cable system in Denver as yet; video is being integrated into these activities.

It would appear that video is particularly suited to the program on Informal Learning for Adults, sponsored by CLR and others, and operated by the CEEB in New York. Aside from watching visual material to enrich his learning experience, the adult learner could also participate in the creation of program materials as he learns. For example, Denver's "Catalytic Synchronisms" program is centered around a single topic, listing not only print materials on the subject, but community resources such as museums, and knowledgeable resource people. As the learner explores the topic on his own, he could share his progress via portable video equipment with others who may wish to study the same topic. This kind of "process" tape could vastly enhance the learners' perception, as well as encourage others who may be hesitant to begin learning by showing them the learning process itself. The message here would be: "I didn't know anything about this in the beginning, either, and I was able to learn about this thing; so can you!"

Up until this time, library programming does not yet provide access to the library's store of bibliographic information via cable. While there are no major difficulties of a technical nature which would stand in the way of accessing a machine-readable data base from a home television set, no one has tried it as yet. I will further discuss possibilities in the section on technology.

Another application we do not yet find is that of disseminating information and referral-type data via cable. Again, there are no major technical difficulties, but libraries which now operate such centers are not located in cities where cable systems have been built. A recently funded series of projects to test the practicality of delivering social service information via two-way cable should provide some answers for librarians interested in this kind of activity.(11)

2. The University Library and Cable:

Both of the universities visited were deeply involved in cable programming (Oregon State and Washington State Universities). I had chosen these two institutions because I knew of their cablecasting activity; what I did not realize until I visited was that their approaches were quite different.

At Washington State University all activities involving video and cable are placed within the audiovisual department of the university library, while at Oregon State responsibility for a similar set of activities lies within the Department of Speech Communications. Reasons for placing re[illegible]sibilities in such different departments are mostly political, rather tha[illegible]ical. This was also true for several other universities I visited on my own. Usually there is an ETV station on the campus, sometimes this station is struggling to survive, and all too often it sees any sort of cable activity as competition rather than the reinforcing medium it could be. Turf is jealously guarded, and cablecasting is viewed with some considerable contempt by broadcast professionals and students. The latter are being trained for positions which are decreasing in number each year, while training programs for cablecasters are few as yet. Often the School or Department of Mass Communications also holds a somewhat contemptuous attitude toward cable, while in other places cable is seen as the medium of the future, and attempts are made to incorporate at least a modicum of information into existing courses.

Activities at both Washington State and Oregon State Universities were similar; both stressed that their cablecasting was for instructional purposes only. Both universities schedule one channel for instructional television continuously, permitting students to watch classes from dormitory rooms or from their homes (on-or off-campus). At Oregon the program began in the early sixties and gathered momentum when funds for new classroom buildings grew short. Instead of constructing more buildings, the cable system on campus was interfaced with the commercial cable system serving the town of Corvallis, and courses were programmed for about ten hours daily. About 8,500 students now learn via cable; careful testing has shown that educational achievement is the same for video instruction as it is for classroom learning, but students vastly prefer the former. Cable Channel 5 connects homes, dormitories and classroom buildings on campus, as well as faculty and graduate student housing. The cable operator picked up a great many new subscribers when the program first began, and continues to increase his subscribers each year. He estimates that most of this increase is due to the instructional programming. And everyone with a television set connected to the commercial cable system in Corvallis can, of course, watch any classes he likes, since the signal goes to all homes in the city and to another cable system nearby via microwave.

In addition to Channel 5, another channel is programmed with sports events taking place at the university, local news, public affairs, including election coverage, and entertainment events taking place on campus. So much local programming is generated by the university that the cable operator has not yet found it necessary to provide his own local programming and does not maintain a studio.

The facility at Washington State University, located in the library, is equipped in such a way that a professor may do his own programming. A simple switching panel has been built into a desk; the instructor can switch between two cameras showing different views of him and a third which picks up any visual aids he wishes to use. Experience with this method has shown that it is vastly preferred over instructing and working with technicians.

In addition to the video transmission, Washington State has also activated a number of FM audio channels on the cable system which are used by students to listen to taped lessons. Wireless headsets may thus be used, freeing the student from having to listen in a fixed location.

Advantages of this type of cable use are seen at both institutions as allowing greater freedom for students and faculty. The former group can watch whenever and as often as they like; both systems schedule classes regularly but also offer on-demand viewing. Professors are free to spend more time with students in individual sessions, aiding the slow learner and providing enrichment for the brighter student. Both institutions regard their cable activities as aiding the instructor, rather than replacing him, thus laying to rest a fear on the part of many faculty members that technology will eliminate their positions.

Plans are underway in both institutions to eventually place the library's card catalog on the cable system, if and when it is converted to machine-readable form. Such plans are also being made at the Universities of Illinois and Syracuse; as yet none of these institutions except Syracuse have a machine-readable catalog.

3. State Libraries and Associations: Wisconsin's and Washington (State)'s library agencies have sponsored workshops on cable for librarians and have actively disseminated information about cable to their constituency. In many other states such workshops have also been held (Massachusetts, New Jersey, Pennsylvania, New York, Maryland, Connecticut, to name just a few along the Eastern seaboard). The Library Associations of Minnesota and Wisconsin adopted resolutions pointing up the importance of cable for librarians; again, many others have done the same. Separate cable committees and task forces exist in a good many states, and in California and Wisconsin audio-visual consultants have been added to the State Library staff, who are knowledgeable about cable, and whose responsibility it is to provide information and training from the state agency level.

The Wyoming State Library and the West Virginia State Library have become origination points for state-level cable programming for all state agencies. West Virginia State Library's new building will contain a complete studio facility for this purpose; Wyoming has already begun to produce all types of informational programming for its constituency. Tapes will at first by "bicycled" to all cable systems in the state; later, these systems are to be interconnected to provide a statewide network. The Wyoming State Library programs its own channel, and includes federal and county agencies in its definition of "governmental agency". The same studio which is being used for this purpose is also used as a community access studio, permitting local citizens and groups to make their own programs and to cablecast them.

III Community Groups: Cable is one of the few issues around which citizens and groups of all persuasions seem to rally; everyone in the community, once they learn what cable can be, wants to work on obtaining the best possible cable system for his community. Yet many communities know little about cable, and some city officials even less. I found that in many places the library had been instrumental in beginning discussions about cable; the first meeting was called in the library, informational collection were developed, and organizations set up. The example of Madison has already been described; similarly involved were the Hennepin County (Minneapolis) Library and the Minneapolis Public Library, as well as the Minnesota State Library Agency. St. Louis Public and New Orleans Public libraries called the first meetings in their respective communities to bring organizations together.

An outstanding example is the Sacramento City-County Library where a young staff librarian represented her agency on a county wide educational consortium, chaired by the County Superintendent of Education and consisting of librarians or audio-visual specialists from every educational agency in the county, ranging from the University of California in Davis to the community college and the school systems. Meeting for over a year, the consortium developed a careful plan for the utilization of four educational channels they planned to require in their franchise. A complete hardware and software inventory was made among consortium members, and each was assigned responsibilities for programming a certain number of hours each week. The plan which evolved, and which contains a separate policy statement for the library, is a model of clarity and precision and shows what can be done when all educational agencies in a given community work together constructively.(15) Elsewhere I found little of this type of cooperation; politics and turf considerations appeared to keep educators from working together and from planning what to do with the educational channel.

In other places, libraries are actively working with community video groups. These groups have sprung up throughout the country and usually consist of young people who see video as a means of self-expression, a new art medium, or a way of holding a mirror to the community. Providing local information to the people who are being bombarded with one-way slick broadcasts is seen as an antidote to the mediocrity and unreality of the usual television fare; providing access to the video medium via cable is seen as an important feedback mechanism for local concerns.

Many of these groups take advocacy positions on behalf of the poor, or those who are discriminated against for all the well-known reasons. Thus a partnership with such groups is often a strange new decision for librarians, and some are a bit frightened that the traditional neutrality of the library may be endangered. In Port Washington, N.Y. the library has trained hundreds of townspeople to use portable equipment and make their own programs, which are then stored and shown in the library (Port Washington does not yet have a cable system). Of necessity, some of these tapes, made by community groups, present strong viewpoints, and in one instance, the library was held responsible for the content of a tape which had offended one of Port Washington's citizens. The library's defense was that it acted merely as a facilitator and could not and would not be responsible for program content. This stand is similar to that taken by cable operators in regard to the public access channel, which is perceived as the "soapbox of the air", and which may have as wide a variety of opinions expressed in a program as there are people who hold those opinions. In neither case is the facilitator held responsible for program content, thus librarians who fear this kind of attack are probably unduly worried.

IV. Video/Cable Technology: Libraries have acquired video equipment in large numbers; a survey taken last year showed only about 50 libraries who had equipment; from reports and informal communications I would estimate that number to have quadrupled during the past year. Yet librarians, always short of funds, face a bewildering variety of equipment; rarely can they begin with just one machine, but must consider the necessity of producing their own material on 1/2" open reel equipment (portable or otherwise), and the need for playback equipment in the 3/4" cassette format. It is simply too complicated to play back 1/2" cassettes on open-reel machines, which must be threaded and rewound by a knowledgeable operator, while cassettes may be dropped into the playback unit, a button pushed and the viewer may then watch. Rewinding is automatic, and tapes remain inside the unit and are thus not subject to the human handling problems which can be quite damaging for open reel tapes.

While most 1/2" machines are compatible with one another; there are other formats which have specific advantages, such as a 1/4" recording and playback device which is color compatible and produces superior-quality tapes. Yet these cannot be interchanged, unless they are copied and are thus subject to loss of quality, as well as entailing additional expense for the copy process itself.

A library may begin with as little as $2,000, which buys a camera and a videotape recorder in the 1/2" format, plus necessary ancillary gear. Color may be had but it is more costly; the minimum expenditure is $10,000, and equipment at that price is not yet satisfactory for all purposes. Sometimes the library chooses to use the cable studio; this entails transporting people and materials and is not an unmixed blessing, since rigid schedules have to be met in the studio. Most of the libraries start with a portable black and white camera-recorder outfit (portapak), and a videocassette playback unit.

All except the university installations used 1/2" equipment since 1" recorders are, while producing better quality material, also much more expensive, and are not portable. Portability is important so that events may be captured on location in the community.

The cable operator usually supplies free connections in the library for video reception. If origination from the library is desired, additional interface equipment must be installed; often the cable operator installs this free or at cost.

1/2" tapes can be played back over the cable system but often problems become evident only when the tape is cablecast, while it was satisfactory when played back on the machine on which it was made. A very useful device, called the Time Base Corrector (one of a large family of signal processors) was developed last year and is being installed in many cable studios. It allows the signal emanating from the tape to be virtually rebuilt before it is cablecast. This has been a boon to community groups and libraries which sometimes make tapes under less than optimal conditions (hand-held camera, insufficient light, etc.) and whose equipment may not be as well maintained as it should be. Generally, 1/2" equipment is reliable, easy to operate and durable, provided it receives reasonably routine maintenance. Even when routinely checked out to individuals and groups for use outside the library, equipment has not proved to be as vulnerable to damage as was anticipated.

I visited several research institutions to ascertain whether or not the technology itself prevents libraries form putting printed, microform, and computer-based materials on the cable system. At the Mitre Corporation a system has been developed which would seem to be ideally suited to library applications.(18,19,24) Hardware includes a computer, linked to the cable system by microwave, and a freeze frame device which allows each cable channel to transmit to, and individually address, 600 television sets. Subscriber response and call-up is by touch-tone telephone at the moment, though a full-scale field test now mounted in Stockton, Ca. by Mitre will utilize small alpha-numeric terminals and the cable system's data return (two-way) capability.

Software in this system is mostly of the directory type, though CAI programs are also available. The viewer can switch to a special channel, ask for a directory of services available, and may select from the displayed listing of broad subject areas that which he desires by touching the number on his telephone which corresponds to the wanted item. The directory is set up in a tree structure; from broad subject groupings to very specific subheadings. In the experimental set-up in Reston, Va. one could find out about cultural events in the community, obtain a listing of physicians, new books at the library, fill out one's income tax and do a math lesson (the latter two using CAI techniques). In a more advanced demonstration, actual bedside visitation by a physician was shown, in which a small video camera provided two-way video communication. Games could be played with the computer, and the directory service had been expanded.

While what I saw was purely a demonstration, the Mitre system is perhaps the most promising for libraries. Advantages are: 1) a smoothly working, de-bugged software package which expands on the type of search capability we now have in machine-based bibliographic citation system; 2) the capability to address individually 600 TV sets functioning as CRT's and to hold the information for each on the screen until it has been read or manipulated. The telephone feedback capability of the system will no longer be utilized in the Stockton field test; Mitre will use the cable itself to provide upstream as well as downstream data communications capabilities.

Another possible library utilization of cable for information transmission requires the ability to project microforms onto a television set, as well as printed full text. I saw a device at Battelle Memorial Institute (made by Dynamic Information Systems, Inc., Minneapolis) which holds notch-coded microfiche in a carousel unit. This device is under computer control; individual fiche can be called up, positioned according to individual frame desired, and displayed on a CRT. Information displayed can be updated on-line; the update information is stored in the computer and is automatically inserted in its proper place when the next COM edition of the fiche set is produced. There are other manufacturers which make similar devices; price is as yet a drawback, DIS's device costs $20,000 at the present time. It is conceivable, however, that large regional resource libraries, such as the Center for Research Libraries, could utilize such a machine to advantage.

Full-text call-up and display can take one of the five forms; 1)microfiche (discussed above); 2) video storage; 3) digital storage; 4) camera trained on print material; 5) facsimile.

Video storage and retrieval is possible utilizing a system such as the Ampex Videofile. Storage capacity of a reel of videotape varies with the width of the tape, a 2" reel of one hour length can hold 250,000 pages. Each page can be digitally addressed on the audio track and can be accessed using a mini-computer or a simple device which counts revolutions of the VTR's capstan.(7) Dial-access systems have used such techniques for some time now; the well known Oak Park-Lake Forest system copies desired information from a continuously spinning tape ont a small video disc, which is then used by the individual to access a particular piece of information. Again, cost is a drawback, along with necessity of converting great masses of ma-

terial to videotape.

Digital storage of full text requires keying or OCR equipment capable of reading all kinds of type fonts. In some cases, where print materials are produced from original input in machine-readable form (e.g. National Union Catalog, NLM Catalog, Books in Print, many works produced by photocomposition, utilizing such devices as Videocomp), it would appear to be practical to utilize this original copy as an alternate means of publication for electronic viewing. While we see this development accelerating rapidly in the simultaneous publication of abstracting and indexing services, it has not, with few exceptions, penetrated the full-text market. The New York Times data bank and some of the machine-based legal systems (Aspen, Lexis) are the trailblazers here. It seems reasonable to assume that the nascent trend toward simultaneous publication in both print and digital form will accelerate, making available a far broader selection of materials than at present.

Simply training the camera on print material seems an easy way to transmit printed information. However, it was found in both Mobile and Casper, Wyo. that there are problems with resolution on the TV screen. The American industry standard of 525 raster lines, of which only 350 are actually used, does not provide sufficiently high resolution to show an entire page of print at once. The camera must zoom in to provide legibility, thus displaying only parts of each page, and an attendant is needed to move the camera back and forth as a person is reading from his television set. Techniques have been developed to split the page and automatically insert the second half of each line beneath the first, but these are expensive and not yet widely available.

Facsimile transmission is of course possible, using the cable in a similar manner to wide-band telephone lines, providing both the added resolution and speed needed to make fax attractive. A small cheap printer has been developed by RCA which can be built into a television set to provide hard copy when desired. New York State presently has an RFP out to facsimile manufacturers to build the machine librarians have been requesting for years: one that would copy from a bound volume. I hope that this RFP results in such a machine finally being developed; while fax use has increased tremendously over the past few years, librarians still cannot use such devices because of their inability to copy direct from bound volumes, line costs and resolution problems, the latter two of which would be alleviated by use of the cable system as transmission link.

Interconnection of cable systems is obviously necessary to provide a viable means of sharing library information. A number of options are open to systems contemplating such interconnection. 1) telephone lines, both voice grade and wideband; 2) special purpose carriers; 3) value-added networks; 4) the CARS systems (Community Antenna Relay Systems). Technologies used by these are: 1) the switched telephone network, providing voice-grade, conditioned, private, wideband, and, in the future, all-digital linkages, and using coaxial cables, microwave interconnections, and satellites; 2) specailly constructed all-digital lines between major cities, again using microwave and coaxial cable, and probably satellites later; 3) a service utilizing all the above technologies, allowing the user to dial via local call into a nationwide loop, in some cases using packet-switching techniques to discriminate between messages, lower costs, and speed up transmission.

Voice-grade and conditioned lines have been used by librarians for some time now to provide access to bibliographic networks (OCLC) and data bases (SDC, DIALOG). The problem has been cost of transmission, as well as speed; voice grade lines are thought to have an upper limit of 9,600 b/p/s of transmission speed. Advantages are that messages are switched through the Bell system, a capability not otherwise available as yet.

Interconnection of cable system is being achieved by means of microwave, satellite, and dedicated networks. A test of library utilization of satellite transmission is being mounted in the Rocky Mountain area, where NASA's CTS satellite will provide service to isolated regions by testing a number of options. One of these will be direct transmission to earth receiving stations inexpensive enought to be owned by institutions such as libraries, another will be transmission to cable system headends. The libraries of the State of Wyoming, Natrona County in Casper, Denver University and other Rocky Mountain states will participate in SALINET (Satellite Library Information Network) to share data and information. While only an experiment, this project could have considerable importance for testing of the assumptions about data and information constantly made by librarians, but never proved. Since the Rocky Mountain area is also negotiating with OCLC, it is hoped that its data can be transmitted using the satellite, thus establishing the feasibility of exchanging large bibliographic files via this new technology. Much work needs to be done by librarians before this can happen on a national basis; badly needed are protocols for inter-network data transmission, preferential status of users, etc.

While cable systems can be and are being interconnected, limited switching capability remains a problem. Were a large library system such as the Free Library of Philadelphia to utilize such interconnections to bring data and full text to outlying libraries in Pennsylvania, it would probably need its own cable channel, and would have to insure that separate cable loops are available throughout its system as well as in the outlying libraries, (where there are no branches, this loop would simply consist of a dedicated channel with two-way capacity). If such separate channel capability is not provided, messages would be received by all home subscribers as well as the library. While this may present no problem in the beginning, when an abundance of channels will be available, it will become one as channels are filled up with pay cable and similar uses. Again, technology exists to provide limited switching now; the difficulty lies in convincing the cable operator to build such technology into the system from the beginning, and a further problem is that older cable systems, constructed before the 1972 FCC Rules set technical standards, do not usually have the capacity to be technically expanded in such a way that libraries may transmit data and text.

Interface equipment is costly, and until the cable operator can be convinced that utilization of such additional equipment, mostly for business data communications and to a lesser extent, by libraries, is profitable, he will not build such complex systems. Efforts are now underway by the Sterling-Manhattan Cable System in lower Manhattan to explore with firms in the Wall Street district the possible use of such technology; I hope that

these negotiations will bear fruit, for a full-scale data communications test is badly needed to provide inspiration for other cable operators to provide these services.

To summarize: digitized and videotaped information can be displayed on a television screen, similar to the way it is displayed on a CRT. Microfiche can also be displayed, but the equipment needed is costly as yet. Cable systems can be interconnected for long-distance transmission of information, using a number of different technologies, the latest of which is the satellite, which is said to lower costs by about half over conventional long-distance links. Two-way capability is being built into all newer cable systems, which provides minimal upstream response capability; more complex technology, utilizing a computer, is needed for limited switching, individually addressing sets, and providing alpha-numeric inquiry capability. Full-scale tests are being mounted in Stockton, Ca. of the Mitre Corporation's TICCIT system, and will be available as a result of feasibility studies now being conducted with NSF funding.(11) The SALINET experiment will provide answers about libraries' needs for long-distance, rapid data communications capability. The time is ripe to mount a comprehensive library experiment, testing, in a user environment, the capacity of a cable system to distribute information in its service area, and to be interconnected to another such system over distance. It is hoped that funding for such an experiment can be made available to provide answers where there are only hopes and questions now.

V. Governmental and Regulatory Policies and Problems:

Cable systems are usually privately owned, either by individual companies, or by MSO's (Multiple System Owners). They are regulated by the FCC because they retransmit broadcast signals, over which the FCC has jurisdiction. They are further regulated on the local level by municipal governments, which award a franchise allowing the cable operator to use public rights-of-way for constructing the system. A third tier of regulation on the state level is emerging, and the cable operator complains that this three-tier regulatory structure will effectively prevent - or at least slow down - cable's developement.

The Third Report and Order, (21) issued in 1972 by the FCC, sets down rules for the orderly development of cable systems. A previous freeze, imposed by the FCC on the 100 major markets, had prevented such development in those cities containing over 90% of the U.S. population. A clarification of the rules, issued in July of 1973, and another set, published in April of 1974 points up the difficulties inherent in developing a comprehensive cable policy for the country. Much in the original 1972 Rules was vague; some problems could not have been, and were not anticipated.

To further complicate policy-making on the national level, the Office of Telecommunications Policy in the Executive Branch has been developing its own national plan for cable which appeared in January of 1974.(22) Legislation has since been written to implement this policy.

To summarize, however briefly, major provisions of the emerging national cable policy is difficult, yet necessary, if we are to understand the importance of cable communications, as well as its dependence on governments on all levels, to either further or stifle its growth.

All government policy treats cable as the communications medium of abundance. Recognizing that present technology allows up to 80 channels to be energized in a single system, and that more will be possible, the intent is to allow maximum growth of cable systems so that the public may partake of the abundance. The FCC has turned from an attitude which was protective of broadcast interests to one which furthers cable as not only a means of retransmitting broadcast signals but also as a way for the public to gain access to the media for the first time. While still placing limitations on cable's ability to retransmit distant signals (and thus fragment the lucrative broadcast markets in each city), it does permit such importation and thus enhances cable's ability to attract viewers. The origination of local programming by the cable operator was required in the 1972 Rules, but has since been put into question by both the recent Rules clarification (April 1974) and the OTP bill. Essentially, cable is increasingly being perceived as having some of the aspects of a common carrier, which means that responsibility for programming would be sharply separated from transmission of such programs. The OTP bill provides the operator with two channels for programming; all others would be available for retransmission of broadcast signals or leasing to other parties, who would produce their own programming. Should the cable operator wish to do his own programming, he must form a separately administered corporation for that purpose.

In the process of developing a position which views cable systems as common carriers, the OTP bill is eliminating provisions for two of the three free channels which were mandated by the FCC in its 1972 rules. Of the three (for governmental, educational, and public access programming), only the public access channel remains, the other two will no longer be free but will be leased by educational and governmental agencies, possibly at a preferential rate. Other provisions of the bill allow, in contrast to the 1972 Rules, far more media cross ownership, probably in the realization that if broadcast interests are to yield to cable, the best way to facilitate this is to allow them to own cable systems. It should be noted that provisions of the OTP bill are not to take effect until a large percentage of homes can subscribe to cable television.

The FCC's Clarification and Notice of Proposed Rulemaking (20) pays attention to franchise provisions, and limits f[illegible] fees, while the OTP bill attempts to limit rate-of-return on investment. Unreasonable franchise provisions are discouraged by preemption of certain technical and other guidelines by the FCC, thus preventing cities and states from establishing regulations which exceed those of the FCC. The proposed Rulemaking also addresses such questions as transfers of franchises where systems have not yet been built, and which are purportedly held for speculative purposes only, public hearings (under what specific conditions should they be held?) and similar questions.

What emerges from this bewildering array of plans and regulations is a federal stance at once restrictive and permissive; "schizophrenic" may be a better word. It must be remembered that the FCC not only has jurisdiction over broadcast and cable television, but also over the telephone system, which is regulated as a common carrier. Cable, if it develops as predicted in countless studies, will provide direct competition to the telephone system, and one may be sure that AT&T will not sit by idly and watch "the sleeping giant grow".

In fact, fibre optics are being developed at Bell Laboratories in anticipation of the day when this technology will bring an even wider communications highway into people's home than cable does now, thus perhaps making present cable technology obsolescent.

Another aspect of federal policy is copyright. The Senate's copyright bill, having languished in subcommittee for years, has been reported out and marked up for discussion. It provides, in its present form, for the payment of royalty fees, based on the cable operator's income, for the use of copyrighted materials, but does not address the myriad other problems which electronic transmission of copyrighted materials raises, leaving responsibility for the solution to these difficult problems in the hands of a yet-to-be-established National Commission on New Technological Uses of Copyrighted Works. Meanwhile, non-standard individual arrangements are being made between program owners or producers on one hand, and librarians, cable operators, educators and others on the other hand to permit copying for in-house use, cablecasting, and exchange of visual materials. In some cases, notably in the education field, a one-time permit to cablecast a program after its original showing is being negotiated, while others have obtained permission to make videotape copies of films and cassettes in an arrangement which amounts to purchase with license to copy. Some librarians and others merely continue to do what they have done; copy until someone stops them! In other cases, librarians have asked publishers to permit cablecasting of material in picture books, only to be told "no" in some cases, "yes" in others; a third group of publishers had no idea what to do.

The picture is unclear, to say the least, and it is difficult to establish firm policy in the absence of clearcut rules. It is important for librarians to be aware of governmental policy regarding cable, and to help shape it by actively participating in the deliberations now taking place.

As yet, there is no single focus on video/cable in the American Library Association or in any other professional library organization. ALA has established two units: The ALA Video/Cable Study Committee, which has as its mission to make "a study of the possibilities for the use of video and cable ...for extending...library services" (14) and to develop Guidelines for librarians for the development and use of cable systems. The first draft of the Guidelines is being presented at the annual conference of ALA in July 1974, and the Committee will have discharged its function and will cease to exist. The Social Responsibilities Round Table also has a unit: the Cable Task Force, which has established an information network throughout the country, members of which are submitting to a central collection point, as well as disseminating, information about library cable activities. It is anticipated that some type of forum for video/cable interests will be created within ALA to provide information as well as present librarians' interests before federal, state and local regulatory bodies. An Information Packet (1) for librarians and a Newsletter (2) further serve to disseminate information and educate librarians to service opportunities enhanced by video and cable. The last two ALA annual conferences featured a great many programs on video and cable for librarians, which proved to be immensely popular and well attended.

VI. Funding:

Wherever video and cable have "invaded" the public library, funds have been made available for this activity. In some cases, the library has deliberately looked at its responsibilities to the community and has reordered its priorities to place greater emphasis on reaching as-yet-unserved parts of its clientele. Cable is perceived as a good means of doing this, providing a convenient way to reach people in their homes by a medium with which they are familiar and which they watch during a great part of their waking hours. Because penetration (the ratio of homes connected to the cable system as a percentage of total homes) is not yet great, only a part of the user group may be reached via cable at the present time. However, as the systems grow, the library will reach a larger part of its clientele. Too, programming provided by the library and other groups is seen as attracting many viewers who do not merely wish to subscribe, and pay for, "more television". In other places, the library has obtained funds from foundations, government programs, and local non-library agencies to purchase equipment, and in some cases, staff and equip a studio, as mentioned above. Staff is more difficult to obtain; it is often easier to get equipment money than to free up funds for additional staff. Many of the present federal programs, centered around special groups (e.g. Older Americans Act, Indian Education Act, Right to Read Program), are willing to fund video/cable projects if the proposed program is perceived as enhancing the original goal of these funding programs. Wherever librarians have applied for money for a goal-oriented project, which would be enhanced by cable, rather than asking for a grant for "cable programming" they have often been successful in attracting such funds.

VII. Summary:

There is no longer any doubt that librarians are and will be using video/cable technologies to enhance and extend their services. While questions remain in regard to the technology itself, the health and viability of the industry, and government policy, librarians are seeing cable communications as an opportunity to gain credibility and visibility, both in terms of their constituency and local authorities. Video and cable are seen as extending the legitimate function of libraries to collect, store and disseminate information, and "electronic information" is seen as "good" information, along with the more traditional print and non-print materials. While the publis library remains in the forefront at the moment, university libraries are beginning to use campuswide cable system, which are often interfaced with the commercial cable system in town. School media centers are also participating in cable activities (10), and special libraries are becoming repositories for video materials used by their companies for training and sales purposes.(23) Yet it is the public library which stands to gain the most from cable communications. At present, there is the opportunity to participate, together with other groups, in educational and planning activities to insure a people-oriented cable system, and to program to fulfill various information needs of the library's clientele. In the future, cable appears to offer an opportunity for electronic resource sharing at relatively low cost, certainly far less than present telephone networks entail. If American libraries are to have a national information system, based on telecommunications, cable communications will have a large part in making these plans come true.

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