

On a local level, adoption of the book catalog resulted from various conditions in addition to the technological. Somewhat typical is the comment by the Enoch Pratt Free Library which indicated: "Failure to keep up with cataloging work; cataloging becoming inadequate (particularly subjects) and inaccurate in branches; desire to widen services; reclassification found necessary." Others would agree with the Chester, Pennsylvania, County Library (whose catalog covers the main library, two branches, and six associated public libraries) that "card catalogs in our county were abysmal. Partial local cataloging added to the chaos. Two new branches and a two-year-old central library made the book catalog seem not impossible, and even feasible."

Other libraries have emphasized the need for multiple copies of the catalog, the clerical waste in filing in a number of card catalogs, and a space problem with the card catalog. The New York Public Library Reference Department indicates it is planning further utilization of book catalogs primarily because of "the extensive and rapid deterioration of the present card catalogs." Finally, it is likely that a few libraries were persuaded because of the local political advantages of dramatizing the library and of appearing to be in the forefront of new library methods. Though the example is not strictly a "book" form, this reasoning is exemplified by Lockheed Missiles and Space Company Technical Information Center which in June 1966 began its microfilm-form catalog to save costs and to enhance the "visibility of Company capability in information storage and retrieval."

The evidence is abundant that distribution of catalog information to branches is facilitated through use of book catalogs, thereby strengthening coordinated library systems. Two good examples of this type of coordination are the King County Library System based in Seattle and the Los Angeles County Public Library. The catalog of the latter includes 43 libraries in independent cities, 48 community libraries, 16 institutional libraries, and 9 bookmobiles. Somewhat similarly, the nine campuses of the University of California are aiming for 1968 publication of a union book catalog for all materials acquired since the appearance of the Berkeley and Los Angeles catalogs in 1962-63. Almost the same condition and solution exists at the Edwardsville and Carbondale campuses of Southern Illinois University, and thought is being given to having the new university libraries at Pensacola and Orlando join the Florida Atlantic University Library book catalog system and share in its operation. Many examples exist

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to demonstrate certain attractive features of the book catalog in a single library system—whether it is a school, college, or public library system.

Have cooperative processing centers or new joint library systems served to make book catalogs desirable? Evidence is slight. In California, a large number of the libraries in Contra Costa and Alameda Counties formed the East Bay Cooperative Library System, and the libraries of three counties near Santa Barbara formed the Black Gold Cooperative Library System upon the adoption of the 1963 California Public Library Development Act to motivate cooperation. The funds for these new systems support book catalogs, yet funds for Black Gold might not have been forthcoming if the centralized processing had not been combined with the catalog. After the book catalog was in existence, the Black Gold libraries found that, with use of the closed circuit teletype, “the real value” of the catalog became apparent “in offering material to the patron and in immediate access.” Common uses of the book catalog of neighboring libraries are to locate a citation for borrowing or photocopying or to find a copy of a book that would be seldom-used so that the seeking library may refrain from an unnecessary purchase.

In Washington State, the North Central Regional Library and the Timberland Library Demonstration (formed by the South Puget Sound Regional Library and three neighboring counties) joined in 1966 with King County Library on a book catalog experiment which they believe may be the first step toward improving service by means of a book catalog which would combine several regional libraries, or would possibly be state-wide. The Washington State Library has reported that its participation in the L. C. Machine-Readable Catalog Copy Pilot Project was due to its desire to help the three regional public libraries with “testing . . . the regional center concept.”

The concept of a state-wide public library book catalog and from four to seven area catalogs is now being studied in North Carolina, based on an existing State Library centralized processing center with which fifty-three public and school library systems have contracted for service. The University of Toronto served as a processing center with creation of two new suburban colleges and three new universities, and it has found a book catalog an attractive way to maintain five sets of catalogs. The New England Board of Higher Education has contracted for the design, for the New England state

university libraries, of computer-assisted regional cataloging and a regional processing center which would produce book-form catalogs for these libraries.

In New York State, two significant surveys of centralized processing and catalog production were issued last year, one for public libraries of the state and one for the public libraries of New York City. The former has recommended a single acquisition and cataloging center for public library systems of the entire state and three physical processing centers for upstate needs only. To provide catalogs for these systems, the proposals were:

1. For the six or seven largest public libraries to have a union catalog in book form, marked to show the holdings of these largest libraries and designed to supplant their card catalogs.
2. For approximately 180 of the next largest libraries to have nine regional catalogs in book form, each marked to show the holdings of the twenty largest libraries in the region and designed to supplant their card catalogs.^{2, *}

These are apparently the only existing multi-library arrangements based on use of a book catalog. The evidence is, thus far, slight that book catalogs have encouraged centralized processing. Yet the book catalog published by a county or state may influence a small library to enter a cataloging center or cooperative plan so it can use the book catalog with its own collections. This would also encourage uniform cataloging, classification, and subject headings. All present evidence lends support to the belief that book catalogs and cooperative processing centers lend a hand one to the other. State or Federal money seems to be the major support in each instance.

Procedural changes necessarily accompany the adoption of a book-form catalog. Several such aspects will be briefly treated.

Concerning the sharing of systems, programs, and machine-readable data, there is considerable anticipation but little that has actually transpired. This is primarily because one institution may have dif-

* The survey also concluded that it was not economic to produce for each of the systems a union book catalog showing members' holdings. Furthermore, it reported that there "appears to be a curvilinear relationship between the number of items processed in a centralized processing operation and the cost per item of doing the processing. The most uneconomic volume appears to be about 100,000 items annually. As the volume decreases from that figure or increases from it, at least up to 400,000 items annually, the cost per item tends to decrease."³

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ferent equipment from another.† It is particularly the case with the computer-produced catalog, as one library wishing to borrow programs from another would have to redesign or reprogram if it lacked access to a 12K 1401 with 4 tape drives for which the first library programmed, or if it used an assembly language differing from Auto-coder. A notable exception to this dearth of sharing is the Montgomery County (Maryland) Department of Public Libraries which has "given subject headings on magnetic tape to Tulsa City-County Library," and has "reproduced subject headings on punched cards as well as total children's entries for Prince George's County Library."

The most significant sharing is in concepts and style. In instance after instance the librarian refers to reading about or seeing examples. Two libraries—the Los Angeles County Public Library and Florida Atlantic University Library—have been the notable precursors. A substantial contribution was made also by the various publications and conference programs deriving from activities during 1958–63 of the ALA Interdivisional Book Catalogs Committee.

Preparation of input data is now only slightly less cumbersome than it was earlier in this decade. Computer coding sheets no longer need look like a double-croctic. Punched cards and punched tape are still the almost universal file conversion means. Newer possibilities are steno-typing, optical character readers, the keypunch bypass to tape, and on-line computer terminals. Production of the finished book catalog generally takes three to six weeks. The photo-reduction of computer printout (typically to 68 percent of original size) can be a temperamental process, duplication is slow, and production of perfect or oversewn bindings is slow although supplements are immediately available if put in post binders.

It is often asked whether card files are retained even when this information exists in the book catalog. Except in such cases as the G. K. Hall publications, libraries almost always dispense with the public card catalogs but retain the card shelf lists. The Free Library

† Of continuing catalogs now in print, at least fifteen use the high speed electronic computer and have developed their own programs, and all but one have used a computer available within the institution; ten use the high-speed sequential card camera and all but one contract the production outside (all are public or state library systems); seven (all public library systems) use unit record equipment; and five use variations of the Library of Congress shingling-photograph technique. Both the high speed computer and sequential card camera techniques have been recently selected for use by large knowledgeable libraries.

of Philadelphia has removed all card catalogs from branches. The Los Angeles County Public Library maintains a card file at the central building to serve only as an authority file.

Although Yale University has temporarily postponed plans for a book catalog, its design has called for a family of five book catalogs: Author (name), Title, Subject, Official, and Shelf List; the system will be capable of producing catalog cards from the same input since they could be used "as a substitute or supplement for some of the book-form catalogues and will be required for filing in University Library catalogues and the National Union Catalog." The shelf list would be produced in two formats, one with close spacing between entries for public use and the other with wide spacing so staff can pencil in new acquisitions (as in the official staff copy of the Harvard University Widener Library shelf list series).

This dual use of input, for automated systems and for continuing needs in traditional format, will be a common requirement in the foreseeable future. Thus, the U.S. Naval Ordnance Test Station Technical Library at China Lake, California, uses an IBM 7094 to prepare tape to print catalog cards and also prepares special subject bibliographies from the same data.

Location symbols are frequently not indicated in catalogs of public libraries; their shelf lists provide information as to holdings. Yet there is no agreement on this approach. In plans for the 1968 computer-produced union catalog for the University of California, it is hoped that not only will all locations be indicated but that all call numbers will also be included.

In record changing for withdrawals, losses, and transfers, the frequently reissued catalogs leave the interim problem to the shelf list. Apparently the Contra Costa County Library, California, is alone in sending a memorandum to branches upon the discarding of the last copy of any title. The master copy of a catalog issued infrequently sometimes is annotated.

Turning to developments in the catalog display, there is considerable variation in entry form and length among libraries using tabulating equipment. In those which use Fotolist and Listomatic sequential card cameras, entry form and length are relatively consistent from library to library. The Compos-O-Line products also show a distinct family relationship due to the freedoms and constraints of the equipment.

Computers are used with widely varying styles of entry form. This

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is true for spacing of column width, column length, central margin(s), indentions, capitalization, length of entry, and arrangement of the components. Variations in entry style can be seen in the following rather typical examples. (Note the University of Toronto method and the Annapolis and Anne Arundel County method for indicating which branches have the title. Anne Arundel uses the sequential camera; the others use computer.)

Three Columns Per Page

UNIVERSITY OF CALIFORNIA, SANTA CRUZ: (entry 42 characters wide)

PEARE, Catherine Owens
John Woolman: child of light; the story
of John Woolman and the Friends. **
New York, Vanguard Press
illus
Includes bibliography
BX7795.W7P4 1954

UNIVERSITY OF TORONTO: ONTARIO NEW UNIVERSITIES LIBRARY
PROJECT: (entry 42 characters wide)

BX7795.W7P4
Peare, Catherine Owens
John Woolman, child of light; the
story of John Woolman and the Friends.
New York, Vanguard Press, 1954.
254p. illus.
Includes bibliography.
1. Friends, Society of 2. Woolman,
John, 1720-1772.

BROC ERIN GLPH SCAR TREN

FLORIDA ATLANTIC UNIVERSITY: (entry 44 characters wide)

*PEARE, CATHERINE OWENS, 1900-
JOHN WOOLMAN, CHILD OF LIGHT; THE STORY
OF JOHN WOOLMAN AND THE FRIENDS.
NEW YORK, VANGUARD (1954) 254p.
BX7795.W7P4

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ANNAPOLIS & ANNE ARUNDEL COUNTY LIBRARY: (entry varies—up to 60 characters wide)

YP PEARE, Catherine O. John Woolman,
922.8 child of light. Vanguard 1954 illus
A B K L O R SC SP

Two Columns Per Page

SAINT LOUIS JUNIOR COLLEGE DISTRICT: (entry 73 characters wide)

210S PEARE, CATHERINE OWENS 922.8 P345 54
JOHN WOOLMAN, CHILD OF LIGHT

TIMBERLAND LIBRARY DEMONSTRATION, WASHINGTON STATE LIBRARY: (entry 53 characters wide)

PEARE, CATHERINE OWENS
922.8 JOHN WOOLMAN, CHILD OF LIGHT.
VANGUARD, 1954. 254P ILLUS.

BALTIMORE COUNTY: (entry 50 characters wide)

PEARE, CATHERINE OWENS
John Woolman, child of light.
1954.
66013949 B W

STANFORD UNIVERSITY MEYER LIBRARY: (entry 45 characters wide)

Peare, Catherine Owens
John Woolman, child of light; the story of
John Woolman and the Friends. Vanguard,
1954. 254p BX 7795.W7P4

Filing the entries is still a manual job in sequential card systems unless tabulating cards are punched for machine sorting. In computer-based systems, *perfect* accuracy of coding is needed and it has proved troublesome to program fully adequate rules for filing. Compromises with standard library practice are commonly made in order to work within the machine limitations and to keep the costs of programming within bounds. Abbreviations will file exactly as written unless a program instructs the computer to file as "Great Britain" but print as "Gt. Brit."; the computer requires instruction if it is to ignore introductory articles, or to file collected editions and selections before individual works. In book catalogs the ease of scanning dozens of

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entries—generally 60 to 110 per double page spread—may compensate for some ordinarily unacceptable filing peculiarities.⁴

The packaging and frequency of book catalogs also vary markedly. Some catalogs are reissued each four months, or in annual and biennial sets, or in sections on a three-year rotation schedule. (Record changing for withdrawals, losses, and transfers is made at this time, with the shelf list an interim explanation.) There exist examples of weekly, monthly, bimonthly, and quarterly supplements. Several libraries issue adult supplements twice as often as they do the children's. Some catalogs are in buckram oversewn, others perfect bound, some wire sewn, others spiral bound, and some in loose leaf or post binders. It seems evident that experience is too recent for common patterns to have evolved. Change in packaging and frequency is easy; it is limited only by fiscal feasibility.

Financial factors are second only to service factors as the basis for decisions affecting book catalogs. Very careful analyses are made in library after library. The Albany (Georgia) Public Library, the Austin (Texas) Public Library, the Boeing Company Aerospace Technical Library, the Burlington County (New Jersey) Library, and the East Bay Cooperative Library System are among those which have performed careful financial studies. The preliminary estimates and final actual costs are generally substantially different. The Oregon State Library has undertaken conversion of its Master Catalog and has found that additional funds were needed beyond the original \$235,000 contract. Prince George's County (Maryland) terms the catalog "expensive but worth it." St. Louis Junior College District Library says costs are "high, but worth it." Nevertheless, the Fairfax County (Virginia) Public Library found the expenses to be less than anticipated.

An interesting case is the Los Angeles County Public Library, the pioneering library which moved from a 407 tabulator method to the sequential card camera process in 1962. In 1966, it found the cost of the method "moderate to high, compared to card catalog or unit record or computerized catalog." It consequently adopted plans to begin conversion to a new computerized format in fiscal 1966-67.

Specific cost data are seldom available and are easily subject to misinterpretation. One needs to know precisely the number of titles, the production technique, and so forth, to understand what is behind such a statement as that by Florida Atlantic University, that it budgeted \$20,000 for 1966-67 for a third edition of the complete computer-based catalog in 150 copies and for bimonthly cumulative supplements

throughout the year. An example of careful cost data is provided by the Montgomery County (Maryland) Department of Public Libraries, for a unit card process. In 1962, its costs were 80 cents per item processed by manual methods. In 1963, the cost for multiple sets of the catalog was 79 cents per item by machine methods. In 1965-66, the full technical processes cost was 93 cents for each of 103,011 items newly acquired, while the Department was withdrawing 46,902 items, sending 12,520 books to a contract binder, and also serving three more branches than in 1963.

Expenses for creating a computer-based book catalog in 1966 for 25,000 titles (for all processes after cataloging had been completed) were divided as shown in the following table for the Stanford University J. Henry Meyer Memorial Library:

*Approximate Costs for File Establishment, Programming,
Test Catalogs, and First Annual Catalog**

(This excludes system design costs, administrative and general overhead expenses, minor supplies, etc.)

1. Input (25,000 titles: \$10,011.98, or 40c per title) (Note: Input estimates include provision for all extra records needed for added volumes and copies and cross references.)		
a. Coding: 50 titles per hour @ \$2.20 per hour:	\$1,100.00	
b. Key punching: 12 titles per hour @ \$2.20 per hour:	4,583.33	
c. Proofing: 72 titles per hour @ \$7.40 per hour:	2,569.43	
d. Equipment: 029 Key punch rental (\$926.02); IBM cards (\$312.34); and special coding sheets (\$520.86):	1,759.22	\$10,011.98
	<hr/>	
2. Programming of eight separate programs:		5,945.00
3. Computer charges: a. weekly edit lists	3,000.00	
b. first annual catalog	2,500.00	5,500.00**
	<hr/>	
4. Reproduction charges for paper, plate creation and printing (Itek Platemaster and offset):		4,409.09
5. Binding:		
a. 350 volumes @ average cost of \$3.65 (30 sets over-sewn in buckram and 20 sets perfect bound in paper)	1,277.50	
b. 28 binders for shelf list @ \$2.49 each	69.72	1,347.22
	<hr/>	
<i>Total Approximate Cost:</i>		\$27,213.29**

* This cannot be compared with figures in *Library Resources & Technical Services*, 10:90, Winter 1966⁵, since those estimates excluded nonproductive personnel charges, edit lists, and test catalogs, while they included the cumulative monthly supplements.

** Two full test catalogs were run to check programming and a third was run and partially printed. All this cost about \$4,000 additional.

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Financial projections for several years ahead are particularly difficult to make, yet administrative decisions should not be based on one or two year estimates. In such circumstances, Yale University Library calculated accession rate, collection size, desired output, and computer time. For a book catalog of a large research library, Yale's conclusion, as reported by David L. Weisbrod, was that "the cost figures on just the computer time were high enough that we temporarily decided to put off a book catalog and go to card production as our first effort."⁶ Some other libraries have reached different conclusions based on evidence that the cost of computer use is coming down rapidly and that real-time direct access will soon eliminate the reproduction costs.

All in all, many librarians are finding it economically feasible to adopt the new form of catalog. As Margaret C. Brown has said: "The suggestion that some catalogs might be produced better in book form than housed in a catalog cabinet is not made in the interests of economy. . . . Better service, measured in terms of improved catalogs and easier access to library collections through these catalogs, is the consideration."⁷

It would be wrong to imply that conversion to a book form catalog goes smoothly. Complications are many, and financial surprises are only part of the story. As instances, one can cite Florida Atlantic University's need to give up the extended print chain; the delay of over twenty months in delivery of the book catalog to the University of California, Santa Cruz; Baltimore County's first experience that in slightly less than 90 percent of cases could the catalog lead one to the book; Yale's experience that, although their computer programs had been operating for a year and a half, they still harbored two major bugs, each of which performed its trouble-making about once or twice during a week; the New York State Library's termination of its widely admired book catalog; the dropping of plans by the University of Illinois at Chicago, after its careful preliminary studies; and the withdrawal in 1966 by Harvard University's Countway Library of Medicine from the computerization project begun with the Columbia and Yale medical libraries in 1961. Other examples abound. Minor troubles, as with the notorious error correction procedures for paper tape input systems, are manifold.

One particularly knowledgeable county library in the West, using a sequential card process on outside contract, has noted the reasons for its dissatisfaction:

1. High rate of error in the product not only results in public service staff lack of confidence in their use, but results in a cost factor not anticipated in technical services need for revision and ensuing correspondence and conferences and other nonproductive time.
2. Error in contractor's premise relating to cost estimates resulted in library budget deficiency before the end of the budget year.
3. Contractor's promise to seek state permission to eliminate sales tax was not kept, resulting in more than \$2,000 worth of difference. (It was subsequently ascertained that the sales tax need not be paid.)
4. Inability of contractor to offer a valid projection of costs for five years, due to anticipation of changes in machinery and methods.
5. Turnover of officers and loss of personnel from the project make long-distance communication difficult.

The Baltimore County Librarian has said:

We have learned. How we have learned! Absolutely convinced at times that we were victims of our own mindless, reckless adventurism, we, nevertheless, have survived. . . . We would recommend that others entering such a project consider carefully every item that should or should not go into the catalog; what is absolutely essential; what is merely desirable; what is on the cards because it always has been on the cards; what is dispensable, etc. Then confer long and soul-searchingly with the programmer to make sure that there is a genuine meeting of minds and that everyone concerned is agreed on every single item involved and the way in which it is to appear in the book catalog.⁸

What is said of a computer-based process is only slightly less applicable in the unit card, sequential camera, and shingling processes. It may be noted that three libraries with an expertise to match anyone else's—the Library of Congress, University of Missouri, and University of Chicago—have spent more effort on mechanization than nearly anyone and yet have been cautious concerning the new book catalog processes.

Despite the complications, there are glowing implications in present trends of book catalogs. As each library newly adopts the book form, there are more enthusiastic proponents. The difficulties can largely be averted or resolved. It is not difficult to learn about the processes despite the specialized jargon.⁹ The equipment is slowly improving. Actual costs can sometimes be determined from libraries

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which have pioneered. Yet it is still rather soon to announce that a clear pattern of applicability exists. Only highly tentative judgments can be offered.

Book catalogs are obviously useful where one collection serves many branches or campuses. The East Bay Cooperative Library System mentions ten agencies as a minimum. Baltimore County indicates that book catalog applications are not for any "small" library to invest in independently, and that multi-county or state-wide catalogs may be a desirable pattern. At the other end of the spectrum is the Los Angeles County Library which believes its sequential camera techniques may be applied most effectively to catalogs of smaller collections, or of collections which do not require periodic reprinting of cumulated master volumes. A similar conclusion was reached by Ritvars Bregzis of the University of Toronto. He believes that the book form is not a suitable medium for displaying large bibliographic files requiring frequent updating; he has also indicated that full cataloging for 50,000 titles may be the upper limit of economic feasibility. Some libraries would increase that level to at least 100,000 titles for simplified cataloging or go even further for severely abbreviated listing. Florida Atlantic University is highly satisfied with the book catalog for its total collection.

Those librarians who can foresee themselves soon encountering problems deriving from size must admire the courage required to convert the National Union Catalog, or the courage of Harvard which is putting its 2,225,000 volume Widener Library catalog in machine-readable form and issuing indexed shelf lists in book form. Most librarians who have taken the plunge are convinced that increased work loads, the need for improved service, building space requirements, and certain financial considerations will force all research and large public libraries to adopt automation. The larger the library's collections, moreover, the harder it is to implement an automated system.

As to techniques, opinion seems clear that the photographing of shingled or arrayed cards is suitable for replacement of a card file; it is a good one-shot application, not reasonable for issuance of cumulative supplements. Southern Illinois University Library sees the process as an interim step before computerization. The Harvard Law School Library finds it admirable for printing a card file when the cards are subsequently to be destroyed.

The unit card process using tabulating equipment is economical.

Format can be reasonably attractive, as shown by the Washington State Library (which has used the IBM 407 and reduced the printout by Kodak Ektalith for offset). It is sometimes the first method used before "moving up" to the sequential card camera or high speed computer.

The sequential card technique is used exclusively by large public library systems. It unquestionably results in a most handsome catalog when used with Varsity composition. (Computer fonts can hardly be termed aesthetic and the face available on the extended print chain is poor.) The Los Angeles County Public Library is converting from sequential camera to computer due to time and cost factors. The Enoch Pratt Free Library also plans to convert to achieve system flexibility, better speed in issuance, saving of the catalog card space, and improved economy of the system. The Free Library of Philadelphia concludes that "most libraries beginning publication of a book catalog today would probably feel that they should utilize a computer. If they cannot use a computer immediately they would probably want to punch tape in the hope that some computer someday somewhere could use it."

One must not extrapolate from trends in this decade. Nevertheless, it is apparent that computers will be widely adopted by libraries in the last third of this century. The image of the future library catalog described in MIT's Project Intrex is a clear one.¹⁰

Although one cannot gainsay the General Electric information specialist who termed the card catalog "a delayed message center," each of the book catalogs mentioned above is *far* less current than is a card catalog; each is an off-line technique. Several libraries are already designing for on-line, real-time, terminal inquiry of catalog data held in computer storage areas. The computer input is the same as that for a book catalog, but time-sharing will now permit the library user to have direct access to the computer information. No delays result from photographic schedules, reproduction time, and the binding process. Real-time inquiry will be a common sight during the 1970's.

Sir Frank Francis, in closing the June, 1966, Anglo-American Conference on the Mechanization of Libraries, felt optimistic that the time was appropriate for the large libraries to move forward into mechanization.¹¹ He felt equally certain that there are grave dangers of oversimplification. Libraries have large amounts of information urgently needed by society. Yet the methods of extracting information are old-fashioned by present standards, and the methods of access

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are ridiculously inadequate. He foresaw that through automation, the service provided by large libraries will be transformed.

The next few years will see improved equipment and lower unit costs for computer time. They should also see modular computer programs for economical local structuring, a bibliographically suitable programming language, and vastly improved input-output devices designed to meet human engineering standards. The years ahead will be bountiful in terms of library cooperation—the sharing of cataloging input data and of access via new catalog forms to resources now largely latent.

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