

LIBRARY RESOURCES & TECHNICAL SERVICES

Vol. 16, No. 1

Winter 1972

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Library Resources & Technical Services, the quarterly official publication of the Resources and Technical Services Division of the American Library Association, is published at 1201-05 Bluff St., Fulton, Missouri 65251. *Editorial Office:* Graduate School of Library Service, Rutgers—The State University, New Brunswick, N.J. 08903. *Advertising, Circulation, and Business Office:* Central Production Unit/Journals, ALA Headquarters, 50 E. Huron St., Chicago, Ill. 60611. *Subscription price:* to members of the ALA Resources and Technical Services Division, \$4.00 per year, included in the membership dues; to nonmembers, \$8.00 per year; single copies \$2.50.

Second-class postage paid at Chicago, Illinois, and at additional mailing offices.

LRTS is indexed in *Library Literature*, *Library & Information Science Abstracts*, *Current Index to Journals in Education*, and *Science Citation Index*. Its reviews are included in the *Book Review Digest*, *Book Review Index*, and *Review of Reviews*.

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Perspectives on Libraries and Computers: A Debate*

Computers in Libraries

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In the recent past very powerful forces have emerged in our society whose effect has been to weaken greatly our ability to distinguish between alternatives which are useful and alternatives which are useless. It is argued here that library automation emerged right in the middle of these mental disabilities, was spurred on for personal and institutional ego reasons; its acceptance reflecting a total lack of the critical evaluation that its expense would seem to require.

IF THERE is any honor in this country equivalent in stature to the British Order of the Garter, it certainly is that of having been called twice to speak to this group of remarkable technical service librarians, and I thank you for this honor. It reminds me once again of three most rewarding years spent as serials librarian at the University of Wyoming in the days when the Serials Round Table (which has never really been replaced since the reorganization) was making signal contributions to the profession.

I am taking the prerogative of the speaker, which always places programs in jeopardy, of departing from the topic on which I was asked to speak, to wit, "Library Automation: A State of the Art Review" for the simple reason that I am not a specialist in library automation. Instead, I will talk about "Brainlessness: A State of the Art Review." I have become a considerable expert in detecting brainlessness, and since, as will become obvious, I consider library automation to be to an overwhelming degree the backside of brainlessness, my remarks may add something to your concern with the stated topic.

I first want to summon as witness what you already know about

* Revised text of materials presented at a meeting of the New York Technical Services Librarians, Columbia University Faculty Club, October 29, 1971, under the chairmanship of Harold B. Schleifer, Herbert H. Lehman College, Bronx, New York.

major tendencies of mind that have dominated our entire culture in recent times. On the one hand, we have dug up the considerably decayed bodies of Romanticism and Rousseau, and on the other the dear departed myths about the industrial system of the boom 1920s. At a time when as never before we need hard-headed thinking about realities that seem always to hover in the crisis range, we have had a massive retreat from reality.

To a very great extent, we know increasingly better how to do things, but we seem to have lost our grip on the reason for doing them. As we accumulate more exact knowledge, we seem to have less wisdom. Some time ago, in an interview with Herman Kahn, a very perceptive British journalist asked him whether the United States had really produced the most foolish educated class in history. I regret to say that Kahn's response, "Not quite," is thoroughly defensible in the light of the recent past.

Reasons for this phenomenon are not hard to find. The long-term strains of an uncertain international situation have combined with conditions of daily life, increasingly riddled with frustrations. My wife produces impressive evidence weekly to the effect that we really do no more than our ancestors, but everything we do takes more time and is filled with more frustrations, and therefore seems more. Consequently, two main drives for a remarkably large number of people are for certainty and for easy solutions. In the bulk of my library building consulting situations, now more than seventy-five, the hardest problem is to bring the people in the operation to think with precision about why they are doing what they are doing, what are their real aims, and how best to achieve them. It is impossible to exaggerate how strong is the tendency to want answers that are so obvious you don't have to think about them and so true that they make you feel good. This tendency is found not only in the young and foolish, but in responsible people in high places. As I will indicate, it is a bread-and-butter condition in library automation.

The second major factor in the intellectual quicksand I am trying to describe is the reemergence of the myths of the beneficence of the commercial world and the infallibility of industrial procedures. My college years were during the heady thirties, in which it was obvious to the whole country that industry didn't know its ear from a hole in the ground about what it was doing. The shambles were still spread out around us. We understood that a system based on personal greed (known as economic motivation) involved ruthlessness and deception, and was rife with meretricious motives. Anything connected with the commercial world was automatically, for this reason, suspect, likely to be invalid, and probably dishonest.

A miracle as great as the recovery of the German and Japanese economies is this recovery of the American commercial world from its ultimate, and rightly deserved, disgrace. After the Second World War, from which we are still suffering morally, we discovered that our in-

dustrial potential had more than doubled in four years. An intensified public relations industry which had learned much from war propaganda—especially that bit about repeating the big lie—plus the torrent of consumer's goods poured out to a war-deprived American public, made us forget everything we had known (and are in the process of learning again) about the unreliability of the procedures of the commercial world. And so, what was good for General Motors was good for the country, and I do mean the entire country. Not just its economy and its government, but its churches, its institutions and, most shamefully, its institutions of higher education.

For in the past twenty years, there has been a radical merger of the marketplace and the university, and this is the third major factor in the intellectual quicksand. In a matter of twenty years, the university has flipped from its position as the only guaranteed, independent prober of the entire spectrum of thought, the one source that valued the ability to distinguish between the temporarily and the permanently significant, to a condition of being continually washed by the values of the marketplace, and constantly shifting with their ephemerality. In a letter in my collection of the poet Robert Graves, he dismisses summarily the importance of American universities, which, he contends, are part and parcel of big business. The near truth of his statement becomes more uncomfortable every year.

The reasons for this radical change, whose cost to society is immeasurable, are financial pressures, on universities, on their faculty, and the ability to get more and more money from government and industry, always at a price, ending up in dependency. And as always, the piper plays the tunes he is ordered to play. For our purposes, this is a crucial fact, since library automation began in, and is still predominately practiced in, the colleges and universities, despite the MARC project.

Let me recapitulate quickly, before getting to work on Mrs. Avram's specialty as I have seen it. In the recent past, very powerful forces in our country's mentality have resulted in: (1) a massive retreat from reality, resulting in an unwillingness to think problems through to their ultimate conclusions. To George Orwell's *Doublethink*, we have added *Half-think* as a standard methodology, and coupled it with a reaching out for emotional jackets into which we can slip ourselves snugly. (2) The euphoric feeling now connected with imitating industry. (3) The get-with-it-ness in the universities, now largely deprived of the mentality to question marketplace ideas. The total effect of these forces has been to weaken greatly our ability to distinguish between alternatives which are useful and alternatives which are useless. In sum, we are unable to think clearly about a whole range of important problems. Library automation, unfortunately, emerged right in the middle of these mental disabilities, and was severely crippled by them.

Now down to specifics. I assume that I am here because I wrote an article about the use of the computer in libraries for *College & Re-*

search Libraries this spring.¹ The reactions to this article were marked to a high degree by the Springbok mentality that I find common among library automatons when they think about the reasons for or justifications of their projects. My critics assumed that the article was about library automation and computers, whereas it is clearly about the thinking that lies behind automation in libraries. It was attacked as a faulty scholarly article, undocumented, whereas it clearly is a satirical polemic, issuing the warning that accountability is here, the hero medals for computerization tarnished, and from where I stood, that it all looked pretty silly.

I argued that computerization was launched in libraries for personal and institutional ego reasons, or was pressed on the library by the ignorant, among whom I number (but not exclusively) electronics engineers, campus computerators, and top administrators. If my memory serves me well, it was foolish pressures like these that dragged the Library of Congress kicking and screaming into automation in the first place.

I argued that I have yet to see or come close to a library automation project that has been chosen as the best of carefully appraised alternatives on a managerial basis. I argued that although the computer can do nearly everything in the library (and it is a fascinating machine), it can do nothing, cheaper than alternative methods, that we need to have done. I argued that we were ignorantly imitating industrial research and development, which comprise our systems programming, and would have to make the industry come to us with solutions. I argued that we were wasting money on a faith the exact equivalent of a witch's faith in flying ointment.

I have gotten some interesting answers, in person and in public. About costs: admissions that the computer is not cost competitive, coupled with the view that we can't go on the basis of costs.² This is 1968 mentality; costs become the grinding fact more crushingly every day.

About ego motivation: "Mason should give credit to the downright heroism of research institutions that, in the face of high costs, are willing to try the untried to advance the state of our sadly backward art." I think he means catalogers—that sadly backward art—and he's saying that it takes a lot of courage to waste money.

About the industrial ploy: "Mason decries the added cost of automation without allowing for increased service speed and accuracy, which are the chief reasons for the successful application of modern techniques in business and industry." Perhaps Mrs. Avram will say a few words about the increased service speed and accuracy of automation.³ The interesting thing about our creep after industry—which a friend of mine has characterized as the whore with the virgin PR—is that when we got with it, industry had already been wallowing in the computer for fifteen inebriated years. But hardly anything remains the darling of industry that long; now it is the laser, which I expect any

day to be imported into the library for erasing catalog cards. Two years ago, with the squeeze on profits, industry found itself with a hangover from its binge of computerization, and has drastically cut back its commitments to computers. Data-processing vice-presidents are being displaced by accountants, and the chips are really down. There is a brilliant, thirty-page survey of the current industrial computer status by Dan Smith in *The Economist* for February 27, 1971, entitled "The Accident-Prone Miracle." Meanwhile, back at the library computer, we proceed with the gung-ho 1968 brave new world mentality, damning the torpedos, while our libraries wither around us.

About faith, it's touching, but painful: "Machines are expensive toys; no one knows how much they really cost. All the caveats that Mason issues have been well-known for years, but we still have faith that eventually, not tomorrow or the day after, but eventually the computer will make drastic changes in the library world."⁴ Just buy this prayer cloth (as we have been doing), and if you believe, if you have faith, it will cure all the ills of libraries. Even from the Midwest, one cannot believe that this is the voice of the future.

The latest word comes from Gerard Salton, chairman of the Department of Computer Science at Cornell University, in an article replying to mine in *Library Journal* for October 15. This veritable gem catches the computer mentality, like a fly in amber, in its most unblushing pristine form, and reads like a caricature of itself. While admitting freely that library automation development costs are high, and operating costs higher than the manual costs replaced, he nevertheless insists that computerization of libraries is inevitable, because our large loads are piling up backlogs, which will get larger. In the future, automation will be economical.

My view is that backlogs are caused by misappropriation of university money which is in the computer center being wasted, when it should be in cataloging staff where it would be economical. If the computer does become cost effective in the future, we will go with it when it is cost effective. In the meantime, only the reckless waste money on computerized systems that cost more to do the same thing.

Salton then goes on to automatic indexing, which isn't working well he says, but people are even less promising, and we will use it despite its defects because once we mechanize acquisitions, "there is no reason why the same file should not also serve for the cataloging and indexing processes at a relatively moderate cost." Added costs, as you know, are enormous, and no one has yet presented evidence that stringing operations together in an automated system reduces costs for the components.

Salton then goes on to examine at length retrieval of bibliographical data, which will inevitably proceed from the two former automation areas, and ends in the summary: "The managers of some systems report that their customers are highly satisfied. . . . Nevertheless, the current retrieval systems exhibit so many shortcomings that present op-

erations are not likely to be maintained for long." Oh, well. Another million dollars down the drain! But you can't win them all!

The final computer application, which will proceed inevitably from the former three, is relevance feedback in a system of collection management and control, and by this point, Salton doesn't even bother to mention costs. Even Onassis doesn't think this loosely about spending money.

Mr. Salton looks from his photo like a very nice man, and I am confident that he can throw a wicked COBOL, but the line laid out in this article is not only old hat—it was first spewed at us ten years ago—it demonstrates a remarkable capacity to avoid valid thought. This very avoidance is what I find widespread among computerators and I protest it most vigorously.

The final word should be left to Jonathan Swift, in Laputa section of *Gulliver's Travels*, which is his satire on science written 250 years ago: "as they undertake, one man shall do the work of ten, a palace be built in a week of materials . . . to last forever. All the fruits of the earth shall come to maturity at whatever season we . . . choose. The only inconvenience is that none of these projects are yet brought to perfection, and in the meantime the whole country lies miserably waste."

REFERENCES

1. "The Great Gas Bubble Prick't, or Computers Revealed—by a Gentleman of Quality," *College & Research Libraries* 32:183-96 (May 1971). This was reprinted, for the edification of college presidents, in *Liberal Education* (Oct. 1971), p.394-412, and nicely corroborated in its main points by Daniel Melcher's article, of which I had no knowledge, when I wrote, entitled "Cataloging, Processing, and Automation," *American Libraries* 2:701-13 (July-Aug. 1971).
2. This is essentially Mrs. Avram's view, at a time when the New York Public Library is cutting service hours from seventy-eight to forty hours a week and closing three major departments.
3. "The MARC II magnetic tapes, intended to expedite the transmission of the cataloging information, deliver most of their data about twelve weeks late, and, according to one would-be-user, there are currently unpredictable errors of some kind in about every fifth entry . . .," Melcher, "Cataloging," p.708.
4. This sepulchral voice was once Jesse Shera. See *Library Journal* (Aug. 1971), p. 2408-09 and my reply in *Library Journal* (15 Nov. 1971), p.3699.

Library Automation: A Balanced View

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Ellsworth Mason's two recently published papers, severely criticizing library automation, are refuted on the basis that he presents a biased view. Many of his opinions are expressed as blanket statements which require qualification to reflect the total picture. In addition, while admitting to the failures and problems, this paper presents the positive accomplishments in a brief evaluation of the status of library automation in 1971.

IN PREPARATION for this paper, I read all the material Mr. Mason cited in his recent article on library automation.¹ Although the experience was informative, I was left confused. Mr. Mason gave the impression that the literature took a dim view of automation. However, going through the same articles, I found, in general, as many pro-automation statements as anti-automation statements, and I wondered why he, too, had not found them. Apparently he chose only those points which served to reinforce his position. We must assume that his purpose was to shake up the library community to positive constructive action toward efficient use of automation, for there is much to improve—much to accomplish.

Mr. Mason has made two principal thrusts: an attack on managerial practice in libraries and an attack on library automation itself and all it includes—the hardware, the software, the individuals involved, all attempts to date, and the cost. The first point can be dispensed with rather quickly. Any successful program has been supported by management. An administrator stands on his own merits and the use of the computer in the system is irrelevant. Good administrators, if concerned with automation, will support the program by gaining an understanding of funds, time, and personnel required. They will look to a specialist on their staff to advise them when they lack the expertise themselves.

On the other hand, if administrators do not augment their staff with specialists to avoid “being taken” or allow a project to be designed that mimics in all details a manual system including any built-in idiosyncrasies, they are not fulfilling their responsibilities. To a large extent, administrators must depend on others for information. It does not follow that this dependence implies an abdication of their roles as decision-makers.

It appears to me that to bury one's head in the sand because we do not fully comprehend the processes involved in mechanization is in-

deed indicative of abdication of the role of administrator. We must face the fact noted by Mr. Mason that a crisis does exist—that there are social and cultural changes adding to and abetting the crisis, that there is the possibility of obsolescence of the library as we know it today, and that manual methods fall short of satisfying the basic objectives of providing service. The computer as a tool will not solve all the ills of libraries; however, some remedy is needed, and if it isn't the computer, what is it?

Tom Alexander, one of Mr. Mason's citations, refers to a new book called *New Power for Management* in which Dr. David Hertz of McKinsey and Company, the management consulting firm, "predicts that a company that hasn't put its computers to work on higher order activities [than routine clerical tasks] by the early 70's will be wallowing helplessly in the wake of competitors who have."^{2, 3}

Let us hope that today's library managers won't also be wallowing helplessly while the "information centers" take over.

Mr. Mason's second thrust is an attack on the computer industry and the use of the computer as a tool, both generally and specifically in relation to libraries. Here Mr. Mason is under a handicap for, although in his own words, he has "followed the development of computerization in libraries since 1960 and . . . took a course in programming to come current with the field,"⁴ he cannot be considered an expert in the automation field. Therefore, he often misinterprets an expert's opinion or adds to the confusion with another nonexpert opinion.

Mr. Mason often blames the computer for problems that arise from other sources. In discussing the need to write tailor-made software for each application, Mr. Mason quotes Mr. Alexander again:

In effect, each new task for a computer entails the design, development, and fabrication of a unique machine, assembled partly out of a box full of hardware and partly out of a box full of software.⁵

Basically, this is true, thanks to the genius of Dr. John Von Neumann, who is generally credited with conceiving the idea of the stored program. Mr. Mason seems to believe that this situation is undesirable. Is he perhaps suggesting that we revert to the hard-wired machine with its lack of flexibility?

Mr. Mason compares a computer without software to a car without a battery strong enough to power it. But he fails to note that a car performs only a single function of transportation. His analogy seems wide of the mark. Is Mr. Mason suggesting that we could define all library processes to such precision that a computer could be pre-programmed to perform them?

Mr. Mason addresses the lack of transferability of software from one institution to another. True, programs are designed and written to perform a specific function, according to a very precise set of rules. Computer user groups such as IBM Share have made programs for

clearly defined tasks—for use on a specific hardware configuration—available to users for many years. The problem of transferability, for libraries, thus lies in defining procedures with sufficient commonality across libraries and with sufficient precision.

Realistically, what standards will libraries accept? Can they agree on objectives? To use the words of Bob Hayes in a letter to Mr. Mason in 1968: “. . . a package for serial control depends upon the procedure for serial check-in; this differs so radically from library to library that it is virtually impossible to standardize.”⁶ Perhaps Mr. Mason has forgotten those words of truth.

Mr. Mason condemns the computer for the difficulty in controlling the quality of programming. It is true that there are no standards of performance but this lack is not peculiar to the computer field. Can Mr. Mason point to performance standards for reference work or cataloging? Nevertheless, although management cannot evaluate the efficiency of programs, a project director who is technically qualified can so judge. The computer field, like every other field, has competent people and not so competent people—and as a result, better and worse programs are designed and written. As time passes, furthermore, new problems come to light or new insight is gained into old problems, and a program is rewritten. This is the usual burden of progress in any endeavor and not a specific shortcoming of the machine approach.

Mr. Mason feels that librarians have been innocent victims gulled by engineers, systems analysts, and computer programmers. Without doubt, hardware has been oversold. Technicians have minimized the complexity of library automation; oversimplified the solutions required; proliferated abstract concepts concerning information retrieval—neglecting the fact that you can't retrieve anything until you have succeeded in inputting the data and efficiently organized the computer-based file for access to these data. All true, but let us for a moment look at the other side of the story.

Many library automation projects are directed by librarians with a good deal less experience in computer technology than it takes. Taking a course in systems analysis and a course in programming or several courses in both does not make a computer expert. Projects where the computer system design is performed without sufficient in-depth background experience are doomed to failure or mediocrity. Some librarians have gained sufficient insight into the technology to realize the extent of the expertise required and are taking action to hire qualified people for their staffs. Although we go to great lengths to provide training in technology for librarians, how many organizations provide background training in the complexities of bibliography for the technicians? Have librarians in the past ever had to describe a process, a procedure, or the content of a description in the minute detail that is required for computer programming? As Donald Knuth of Stanford says, in summarizing the application of computers in the field of mathematics, “Attempts at mechanization of mathematics are also very im-

portant, since they lead us to a greater understanding of concepts we thought we knew (until we had to explain them to a computer)."⁷

Mr. Mason emphasizes the cost aspects of the application of computers to libraries: ". . . my observations convinced me that the high costs of computerization make it unfeasible to library operations and that it will become increasingly expensive in the future"; "we now know that there is no clear evidence that the computer has saved industry money 'even in routine clerical operations.'" (The "even in routine clerical operations" is part of a statement made by Alexander which reads in full: "It turns out that computers have rarely reduced the cost of operations, even in routine clerical work. What they have accomplished is mainly to enable companies to speed up operations and thereby provide better service or handle larger volumes.")^{8, 9, 10}

Mr. Mason admits to the serious financial situation in libraries, but offers no constructive suggestions. Rather, he attacks automation on the basis of its cost. Several of the projects described later in this section do indicate cost effectiveness. However, the validity of cost/benefit being the only justification for library automation must be questioned.

We may compare the cost of computer operations with staff costs required for a similar manual operation and measure cost effectiveness in terms of plus or minus dollar values. Comparing the output (service) of a computerized application with present manual services, forces us to assign dollar rates to quality and speed of service, but the value of information, the contribution of a library, is beyond measuring only in terms of dollars.

It is a regrettable fact, however, that operating costs of libraries continue to rise, even though it is doubtful that there is substantial improvement in service. If we believe in the importance of libraries to the nation, then how to support them properly (with or without computers) is a national issue, and beyond the scope of this paper. What does concern us is whether computers can assist libraries in giving better service for the money expended.

Libraries have always and will continue to put material under control to provide services. What makes today different from the past is: (1) more material, (2) a shortage of trained librarians, and (3) rising costs. There simply are not enough people even if there were no funding problems. The machine offers the hope that we can concentrate professional cataloging expertise at one point only in the system. This is the attribute we must capitalize on. In a manual system, professional librarians are needed throughout all parts of the system. After all, the unit card does not file itself; and although it guides you toward making added entries, it does not make them for you. These tasks now require professional supervision. They could be performed by a computer in an automated system and unlike people, the machine will carry on its work in a uniform way; no variation will enter into the system.

Mr. Mason certainly is correct in criticizing much of what has been done in library automation but is wrong to draw the conclusion that

all efforts are misdirected and doomed to failure. A poorly designed project does not prove that library functions cannot be automated; it proves that a disaster is a disaster. It is true that large amounts of money have been expended and there have not always been positive or meaningful results. It is questionable whether any effort breaking new ground in a complex environment has been successful in its first attempts. The literature on librarianship clearly exemplifies this fact. *The Anglo-American Cataloging Rules* of 1967, following upon the *ALA Rules* of 1949, 1941, and 1908, demonstrate the difficulty of "knowing all the answers" the first time.

Library automation projects can be considered a universe. One statistically evaluates the characteristics of a universe by drawing a random sample in such a way that each member of the universe has an equal chance of being included in the sample. If we drew a random sample of library automation projects and analyzed them, the sample projects would almost certainly yield a normal curve, with the majority of them falling into the "not conclusive yet" area of the curve and the extreme ends of the curve representing the failures and successes, respectively. It appears to me that Mr. Mason's sample was not random or that he selected his examples from the end representing failures. The failures certainly exist but so do the successes and projects that are not yet conclusive. Recognition of these facts leads to a more balanced evaluation of library automation.

We have not automated any library in its entirety—we may never succeed in doing so. To quote Herb Grosch, "There is a spectrum of feasibility, from the very easily do-able to the forever (yes, forever!) impossible."¹¹ Automating some of the intellectual aspects of librarianship, in my opinion, falls into the impossible end of the spectrum.

However, progress is evident in research and in the automation of specific functions. In some cases, great strides have been made toward a core bibliographic system. We are at last seeing research projects that conceptualize ideas that lead to advances and that are of an order of sophistication that at last matches the complexity of the problems. The work performed covers such areas as bibliographic searching, virtual scatter storage schemes, format recognition, etc.

More projects are operational, providing services and in some instances proving to be cost efficient. The Oklahoma Department of Libraries prepares weekly SDI listings from the MARC data base for sixty-six subscribers. Runs for most subscribers cost between \$1.00 and \$1.50 per week. The MARC data base storage and retrieval project provides selected MARC records in machine-readable form to libraries, thus saving the cost of conversion by the several institutions.

As Bierman says, "The same data base used repeatedly for a number of tasks for several different libraries can be economically and operationally successful. Visit MARC-Oklahoma and see!"¹² Developmental costs in Oklahoma have been kept to a minimum and have been carefully reported by Bierman.

The Ohio College Library Center (OCLC) has now implemented two projects: the off-line catalog production system and the on-line shared cataloging system. OCLC has fifty Ohio college and universities as members. Kilgour reports that "the computerized off-line procedure produces cards at less than half the cost of manual procedures. . . . The majority of the cost of computer produced cards is incurred by associated manual procedures not yet mechanized."¹³

The on-line catalog system, recently implemented at OCLC, provides bibliographic data, products, and location information. It is predicted that after two years of operation, there will be substantial savings to the member libraries if they extract catalog data from the system at the anticipated rate of 351,000 titles per year.

The Ohio State University catalog access and circulation system provides the user with bibliographic and availability information so that the user need not waste time pursuing a title not available. The preliminary estimate of cost savings to faculty in terms of time is encouraging. The University of Chicago Library automated system for technical processing also is operational.

In addition to an on-line book order and selection system, the University of Massachusetts serves as a technical processing center for twenty-eight state institutions. Initial apprehension on the part of the staff has gradually changed to an appreciation of the speed of access to information.

I could go on describing projects at some length. However, since this is an evaluation and not a review of library automation, these examples should suffice to indicate progress and to contradict Mr. Mason's blanket claim that "the computer is not for library use; that all the promises offered in its name are completely fraudulent; . . . that its use in a library weakens the library as a whole by draining off large sums of money for a small return; and that it should be stamped out."¹⁴

Librarians have performed admirably in their endeavors to control information, but long before the computer reared its ugly head, the lack of standardization and the problems incurred by such lack were obvious to them all. The potential use of the computer for bibliographic processing, the advent of shared cataloging, and the MARC project at the Library of Congress have provided the climate to increase our efforts toward standardization. There is a great deal of activity both nationally and internationally. The MARC structure is now a national standard and a recommended international standard. There is reason to believe that groups within the International Federation of Library Associations and the International Standards Organization will begin work on an international standard for the explicit codes and content of a bibliographic record in the not too distant future. The draft standard presented to IFLA this summer on a standard bibliographic description is close to adoption by the national bibliographies of Germany, the United Kingdom, and France. It will be turned over for discussion and hopeful adoption by all national library associations.

The Library of Congress distributes cataloging data in the MARC format to sixty-two subscribers. If one counts member libraries of the New England Library Information Network, OCLC, and the Oklahoma Department of Libraries, etc., there are really several hundred MARC subscribers. The regional networks we have long discussed are becoming a reality.

Cataloging-in-Publication records in machine-readable form will appear on MARC tapes four to six months prior to publication of the book. This means that the machine-readable record will be available to produce book orders long before the book is published. And, for those willing to do without the collation, catalog-related products could be ready long before the book arrives at the institution. As the project director of an automated system for a public library system has said: "The timeliness of this data can be characterized best as a god-send."

There is a growing awareness, both conceptually and in the design of several implemented projects, of the importance of a central bibliographic record complete enough in detail to be responsive to any need, and a realization that such records are fundamental to successful library automation. This is progress.

Although there may be no readily available evidence to support Mr. Mason's seventh truth: "Thou shalt save money as you multiply the separate operations that you computerize if you combine them by a systems approach"¹⁵ common sense tells us that a systematic approach must pay dividends. It is important to automate in an orderly fashion instead of on an "ad hoc" basis so that when the various subsystems are implemented there is some assurance that they will eventually become parts of the whole with a minimum of disruption and redesign (thus saving money).

This has been stated by Warheit, Burgess, Avram, Veaner, and others.

It cannot be denied that there are issues in need of decisions, problems requiring solutions, and concepts calling for further development. For example:

1. There must be recognition that the bibliographic problems are more significant than the machine problems.
2. Bibliographic standards must be accepted largely as a means of achieving bibliographic control economically.
3. Insofar as possible, duplicate efforts should be avoided.
4. Libraries differ by type and size; therefore, the proposed solutions to problems must be evaluated in terms of the library needs.
5. The development of regional centers should be continued because this appears to be the only economically feasible approach.
6. LC name and subject authorities must be provided if libraries are to do local cataloging in a standard way. References required for established names must be provided for the production of book or card catalogs.

7. The problems of transferability of computer software must be addressed.

Victor Strauss might have been describing the status of library automation when he said about the publishing industry:

Right now we are standing, as it were, with one foot in the 19th and the other foot in the 20th century, our eyes gazing at the 21st.¹⁶

Getting from here to there will require talent, hard work, imagination, risk-taking, patience, cooperation, and common sense. We must attack the problems that are feasible of solution leaving aside the more glamorous possibilities that are beyond the present state of the art or that require system capabilities that have not yet been developed.

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Out-of-Print Periodicals; the United States Book Exchange As a Source of Supply

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The functions of the United States Book Exchange (USBE) are defined and its periodicals holdings evaluated. It is compared with similar services provided by commercial dealers and library duplicates exchange networks and is found to complement them. The USBE is shown to provide a distinctive service at reasonable cost and to supply material frequently not available elsewhere. This article concludes that the USBE is insufficiently known and used. It can be of real benefit to developing libraries seeking to enlarge their periodical holdings and to established libraries needing to acquire missing periodical issues.

PERHAPS IT IS PECULIAR to begin a discussion of the United States Book Exchange (USBE) by defining what it is not, but oddly enough, this approach should lend distinction to this singular institution. In his report of a survey of the USBE in 1958, Edwin E. Williams remarked that the easiest thing to remember about the Holy Roman Empire, referring to Voltaire's famous aphorism, is that it was not holy, Roman, or an empire.¹ Likewise, the USBE is not a government organization, but rather an independent, nonprofit institution supported solely by handling fees and the dues of its members. The community it serves is not limited to the United States as the inclusion of some 225 foreign libraries in the membership testifies. It is not primarily a book exchange: only 12 percent of its fees are derived from the distribution of monographic publications. Finally, the USBE is not really an exchange at all according to the definition best known among librarians, namely as an exchange between libraries of one publication for another without charge.

In his survey Williams provides a working definition of the USBE which is perhaps still as good as any: "The United States Book Exchange, Inc., is a reservoir into which a library can channel materials it does not need and from which it can obtain for the cost of handling periodicals and books it wants. Legally the USBE is a private, non-profit corporation consisting of representatives appointed by library associations, councils of scholarly societies, the Library of Congress, and the Smithsonian Institution. Any library may participate and, in effect, the organization is a cooperative serving all libraries that choose to do so."² Since his report, an annual \$25 membership fee has been added, and

corporation membership has been opened up to any library which pays that amount. Some users liken the USBE to a discount supermarket, material being offered in variety and quantity at rock bottom prices.³ It is probably unique among exchanges inasmuch as it is the only such mechanism which receives and distributes surplus publications in one place.

This article will discuss periodicals only, the USBE's biggest business, omitting books and nonperiodical government documents, which are of secondary importance. Properly, one should say "serials," since the operation does include certain publications such as annuals, which may fall outside some librarians' definition of a periodical, but for most purposes the narrower definition will apply here throughout. At the present time, the USBE has approximately 4,000,000 periodical issues stored in a rented warehouse of 25,000 square feet, some shelved in towering fourteen-foot steel stacks, some stuffed into formidably overcrowded makeshift wooden compartments arranged in tiers, and the remainder arranged in orderly piles on the floor. Most titles are arranged by geographical area and within by country (e.g., Africa-Ghana) or by country alone if its publishing output is substantial (e.g., Germany) and are in both cases subarranged by title. An inspection of the stock is revealing of its strengths as well as of its weaknesses. Probably foremost among its strengths is the USBE's impressive holdings of English language scientific, technical, and medical periodical issues published within the last twenty years. Noteworthy examples are the very substantial files of such titles as the *I.E.E.E. Transactions* and of the periodicals published by Academic Press. There is usually a complete run of *Chemical Abstracts* available. There is something almost majestic about the size of the separately arranged holdings of periodicals issued by Pergamon Press: the bulk of them are stored in one great range of steel stacks, overflowing about 600 linear feet of shelving. At the other end of the spectrum, files of periodicals published in the underdeveloped areas of the world are meager. There are, for example, only scattered issues of most Africana. Some of the more significant Latin American periodicals, particularly Brazilian, are in good supply, but other titles are very scattered. Generally speaking, social science and humanities titles, noncurrent titles, and foreign language titles are less well represented than recent scientific serials in English. These observations are not surprising because the USBE is totally dependent upon the contribution of unwanted material, duplicate or otherwise, by its members. Esoteric titles published in limited quantities for smaller audiences are less likely to be designated as surplus by libraries than those widely subscribed to.

Two other means of obtaining out-of-print periodicals are commonly available to librarians: one is through purchase from a commercial agent, the other through a cooperative exchange agreement among specific libraries. An important thing to remember about the USBE operation vis-à-vis commercial enterprises is that the two are not necessarily in competition with each other. Commercial agents are generally solicited for extensive, intact runs of periodicals, and they are understandably re-

luctant to sell single volumes or issues if it means dismembering an unbroken run of volumes which thereby reduces its resale value as a whole. The USBE, on the other hand, although it regularly circulates to its members lists of titles of which it holds extensive files, impartially supplies on demand either single issues or long runs. It observes no policy of retaining certain titles for which the possibility of completion exists, announcing them as available only when an unbroken set is finally put together. Therefore, it stands to reason that a library looking for a complete backfile of a periodical will do better to contact dealers first if it is willing and able to pay current market prices. If, on the other hand, a library needs only a volume or two or single issues, it may have better luck ordering from the USBE. This, of course, is not to say either that the USBE discourages libraries from requesting periodical backfiles from its stock or that dealers refuse to sell single issues.

Along with everything else in recent years, the fees the USBE charges for supplying periodicals have risen considerably, but they remain for the most part decidedly favorable to libraries. The first issue of any title in a single order filled costs \$2.00, and 75¢ (\$1.00 if a foreign publication) for each subsequent issue of the same title (the difference reflecting the time it takes to search a title as opposed to pulling issues from a file once located).⁴ Dealers in the out-of-print periodical business can seldom charge such low prices and still realize sufficient profit. Especially when the issue is from a scholarly or technical journal, the dealer's price almost invariably exceeds the USBE's fee. Should a library wish to obtain a complete volume only from the USBE, a \$2.00 surcharge is added to the cost of the volume's component issues. Even then, the cost is frequently less than half that charged by dealers. There are some important exceptions. It must be borne in mind that the USBE's charge is based upon pieces, not upon the intrinsic worth of the publication; the dealer, on the other hand, establishes his price based upon the original published price plus buyer demand. Therefore, a well-known dealer could recently offer a volume of *Library Journal* (twenty-two issues in the volume) for just 25¢ more than what the USBE had to obtain for the same volume. Weeklies, as may be imagined, are not particularly attractive at the USBE when more than stray issues are needed. After a participating library spends more than \$1,000 in any given year at the USBE, the fee drops to \$1.00 for the first issue, thereby permitting greater savings with larger quantity buying.

Libraries contemplating use of the USBE should consider one other cost differential between it and commercial dealers. Although the stock of the USBE is continually replenished by publications shipped by contributing libraries at their own expense, whereas these same libraries might have sold their unwanted periodicals to dealers for cash or credit, close scrutiny reveals that the advantage of selling surplus items to dealers is more apparent than real. Small libraries with little material to dispose of are likely to get small change from dealers, seldom worth the hidden costs of arrangement, listing, and solicitation which must pre-

cede the sale. Large libraries, which quickly accumulate surplus publications in bulk, may profitably pursue a dual policy without violating the spirit of cooperation with the USBE membership. They may sell substantial, reasonably complete runs of scholarly and technical journals to dealers, who may be able to pay prices for them in excess of the library's inventory, storage, and solicitation costs, and ship scattered issues and nonsequential volumes to the USBE. The USBE does advise, however, that it does not want house organs, most newsletters, and local professional journals. Also, sending mutilated issues is of service to no one. The USBE appeals to libraries to ask before sending periodicals which an intelligent librarian might guess the USBE has in bulk, such as popular magazines and professional membership journals (ALA periodicals, for example). Lest librarians be intimidated by these caveats, however, it should be pointed out that the USBE is glad to accept even so little as a single issue of a worthwhile title.

There are a number of duplicates exchange networks in the United States today. Prominent among them are the Duplicates Exchange Union of the American Library Association and the exchange systems of the Medical Library Association and the American Theological Library Association. It is important to note that the USBE is not in competition with these groups. The functions and benefits of each are sufficiently distinctive to support this observation. To begin with, such duplicates exchange organizations are usually restricted by geography, by subject, or by size or type of library. For example, the membership of the Duplicates Exchange Union is composed of small- to medium-size academic libraries and a few public libraries. Typically, participating libraries accumulate their surplus periodicals, inventory them, and periodically send itemized lists to fellow participants, in return for which they receive similar lists from the latter. Williams points out, however, that the material which these libraries do not want among themselves may very well be of value to the larger USBE network which includes foreign as well as American libraries.⁵ The USBE should have the opportunity to accept this surplus, acting from this point of view as a supplementary distribution mechanism.

On the receiving end, members of duplication exchange organizations should benefit from access through the USBE to periodicals not available from their more restricted networks. Moreover, by themselves, these voluntary exchange associations have a significant drawback: their participants must do all the work themselves. Gathering, storing, alphabetizing, itemizing, shipping, and searching received lists may not show up as a cost figure in the book fund ledger; but such activities are a mighty consumer of library manpower, and the returns can be small. It is a truism that the larger the library, the more expensive the compilation and searching of exchange lists can be, and the returns are proportionately smaller.⁶ At the USBE, all these labor expenses, exclusive of shipping charges, are assumed by the agency as its primary function and are passed on to its consumers as a handling fee only when orders are

filled, a more economical way of doing business. It is not the intention of this article, however, to argue against the usefulness of restricted duplicates exchange systems; for smaller and highly specialized libraries, where the librarian responsible for exchanges is quite familiar with the specific needs of the collection, the rewards are likely to be higher relative to the expenditure of time and effort. The continuing vitality of the Duplicates Exchange Union and the medical libraries' cooperative network is evidence of their usefulness as a means of acquiring out-of-print periodicals.

What is the quality of the USBE's service to its participants? In 1969 the USBE received 68,000 direct requests for single periodical issues and was able to fill 30 percent of them. Response to such requests came on the average within three weeks. Selecting from the itemized lists sent regularly to member libraries by the USBE, requestors had over 50 percent of their orders filled. The USBE is also able to fill many back orders on demand; it conducted fully \$1,200 worth of back ordering business during November 1970 alone. How these percentages stack up alongside fulfillment of similar orders by commercial suppliers is difficult to ascertain; a business concern is understandably reluctant to state categorically its degree of success in filling its customers' orders simply because it operates in a competitive market. However, many librarians with extensive experience in serials acquisitions feel that they can more profitably obtain periodical issues from the USBE than by other means.

Although some librarians have formed the impression that it has become an anachronism, the USBE continues to grow in this era of federal subsidies and the proliferation of reprints. Distribution figures for 1970 show 516,325 periodical issues (and 25,890 books) distributed to libraries. Since its first year of operation in 1949, the USBE has distributed just over 10,000,000 pieces, of which about 8,700,000 were periodicals. This is not to deny that the USBE faces a major problem in rising labor and rental costs.* This inflationary pressure occurred concurrently with the great outpouring of federal funds to American libraries for the purchase of books and other media. Such largesse has allowed many otherwise financially weak libraries to opt for the purchase of intact periodical files in crisp reprint editions at the expense of less immaculate, sometimes incomplete, if much cheaper, copies provided by the USBE. Relative to single issues and volumes, therefore, bulk orders have been declining in recent years. This shift of users' needs means that the USBE has been forced to reexamine its traditional fee structure, whereby the gain from the sale of bulk runs offsets the loss from the sale of single issues, and to make the latter service self-sustaining.

The USBE's executive director, Alice D. Ball, has often stated her opinion that the USBE is insufficiently used. However, perhaps neither

* The USBE is not unaccustomed to crisis. In 1964/65 it suffered a strike by its employees followed by the loss of subsidy from the federal government with an especially adverse effect upon its overseas exchange program. As a consequence, the USBE was forced to institute a membership fee and sharply increase handling charges.

the no longer negligible cost of doing business with the USBE nor the changing requirements of libraries, fully explains Miss Ball's observation. In 1958, when the USBE was a cheap source of supply, Williams estimated that only one-third of potential users actually requested publications from the USBE.⁷ Fundamentally, the USBE is not well understood by libraries. As has already been noted, the name of the agency is poor advertisement of its services. Fully 95 percent of the items distributed are periodicals, not books. It is not, as has been observed, a publications exchange mechanism, but rather a nonprofit enterprise. Therefore, dealing with the USBE should be the responsibility of an ordering unit within the library—especially one which is also responsible for maintaining serial records—rather than of one concerned with gifts and exchanges. Finally, there is a failure of use which is not directly attributable to the USBE's misleading name. It is frequently said of the USBE that detailed information about it is made readily available to potential client libraries, but that it does not always percolate down to the librarians on the firing line. Doubtless, this does occur to the extent that the USBE has never been fully woven into the fabric of traditional library practice as has duplicates exchange, which librarians are bound to have heard about even if they themselves may have never engaged in that activity.

No broad opinion survey has been made of the USBE's users since Williams conducted his study in 1958. That study, however, made at a time when the volume of transactions was far less than it is today, indicated that almost all participants were generally satisfied with the services of the USBE, and that most complaints related to details. They felt, by and large, that the USBE had been very helpful in filling in gaps in their periodical holdings.⁸ The experience of one contemporary USBE user is perhaps a good illustration of the agency's usefulness as well as of one of its shortcomings. Brewster Peabody, library director of the Old Dominion University in Norfolk, Virginia has been a most successful exploiter of the USBE's resources. In 1966 he had the task of building up a periodical collection which was little better than that of a good junior college library and which was almost totally lacking in the sciences. Furthermore, he had limited funds at his disposal. Nevertheless, by dint of monthly visits to the USBE over three years he was able to establish a periodicals collection acceptable for a growing university. He estimates that in the area of the sciences he has achieved a savings of approximately 75 percent over commercial sources. In Peabody's opinion diligent use of the USBE has tremendously benefited Old Dominion University, as it can any emerging academic institution. He does express some strong caveats: personal visits to the USBE with lists of exact holdings are essential; service by mail is slow; and the pulling of requested issues is sometimes inaccurate.⁹ His advice is pertinent if a potential user lives close enough to Washington, D.C. to make frequent visits without undue expense. However, at the other end of the country in San Diego, California the library of a scientific research institute, which in 1956 be-

gan building its collection from scratch, has indicated that without the assistance of the USBE it would not have been possible to develop its basic collection so rapidly or economically.¹⁰ In fairness, however, it must be pointed out that this was accomplished before the heyday of the reprint industry when the USBE was virtually the *only* source of many important periodical backfiles. One feels disposed, therefore, to soften Peabody's admonition: personal visits (which the USBE welcomes) are essential for maximum utilization, especially where acquisition of large files are concerned, but vigorous correspondence can also suffice for libraries which cannot afford the option open to Peabody.

While small, developing research libraries should find the USBE to be a valuable service in acquiring extensive runs of basic periodicals, those well established should discover it to be no less useful for the replenishment of periodical holdings broken by unfilled claims, theft, and mutilation through abuse or heavy use.

The USBE is not a self-serving institution. Miss Ball, its executive director, readily agrees that if librarians feel that this type of agency is not useful, it should be disbanded. However, she is by no means convinced that the services offered by the USBE have been fully tried. Sustained by this belief, she has waged a vigorous campaign to acquaint librarians with the USBE and its wide range of services. Potential users may request free of charge the USBE's handbook, *Operating Instructions*, which cites in detail all services and fees, from the agency at 3335 V (Vee) Street, N.E., Washington, D.C. 20018. If at all possible, librarians in charge of serials acquisitions should also make at least one visit to its warehouse. It is difficult following such a visit to remain unimpressed by its huge holdings of periodicals and, given the great difficulties in organizing masses of such materials, its efficient operation. Most visitors recognize immediately its great potential as an effective and economical source of out-of-print periodicals.

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4. The complete fee structure of the USBE is contained in its *Operating Instructions*, obtainable upon request from the Exchange.
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9. Peabody's comments were kindly supplied in a letter to the author in January 1971.
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A Systematic Method for Reducing Overordering Copies of Books

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It is rather unfortunate that library problems have not been able to attract the attention of management scientists. Hence, major decisions are based on intuition rather than sound principles. This paper discusses a procedure for solving the problem of overordering copies of books for which fewer number of copies would be sufficient. Money can be saved which could be used for other purposes. In short, the effectiveness of library administration would improve.

Library Problems and Management Scientists

THE CHIEF LIBRARIAN of a library can be compared with the inventory manager of a company. Both perform the same function. The inventory manager strives to maintain an agreed service level to customers at minimum cost; the service level for our purpose is defined as the percentage of customer demand which is satisfied. Similarly, the aim of the chief librarian is to provide the best service to customers (readers: students/staff) within the library's given resources. The inventory manager is helped by the sales team regarding future product requirements. Similarly, the chief librarian gets information from staff members regarding future requirements of books and periodicals. The only difference lies in the extent of external help available to them for making decisions. The inventory manager is very often helped by management scientists in making decisions. Library problems, on the other hand, have not attracted many management scientists. A major reason for lack of interest in library problems for management scientists is the sense of importance and the cost of making wrong decisions. Companies have suffered greatly—even bankruptcy—as a result of wrong decisions, but rarely does a library have to be closed as a result of wrong decisions.

The Decision Problem

How many copies of a book should be purchased? This question con-

fronts all librarians a great deal of the time. Decisions are made regarding this question based entirely on intuition, and rarely is an effort made to apply analytical methods to finding the answer. A decision based on intuition is seldom right, and it usually happens that more copies of a book are ordered than are required. As a result, scarce financial resources are tied up in books which are underutilized. On the other hand, it is impossible to apply analytical methods to this problem because no one can foresee the future demand for a book. (Of course, the lecturers can control it to some extent.) It is pertinent to point out that wastage of resources can be greatly avoided by having systematic planning. A procedure will now be described for reducing the wastage of financial resources as a result of buying more copies than required.

Modern methods such as systems analysis or operational research techniques may not find wide application to library problems, but they can provide the best solutions for some of the fundamental problems: (1) optimum budget allocation for libraries; (2) optimum allocation of funds for purchasing books and periodicals between various departments; (3) optimum loan periods for books and periodicals. The problem may be in getting persons to do projects to solve these problems. Students looking for projects may not be interested in taking a project in the library, and hiring of a management consultant may be too expensive for a university library. The only alternative may be to seek the help of staff members responsible for the teaching of these subjects.

The author became interested in this problem due to involvement a year ago in a project aimed at exploring the possibilities of applying operational research techniques to library problems. Many studies were conducted with the objective of finding methods for improving the effectiveness of library service.

An interesting conclusion which emerged as a result of a study was that the number of copies of a book in the library is not generally related to its demand. In more than 70 percent of the cases (books having three or more copies), the same customer service could be provided by having just half of the number of copies. In short, libraries are spending (wasting) a significant amount of money in buying more copies of books for which fewer number of copies should be ordered.

Reasons for Overordering

The reasons for overordering books, when investigated, were found to be as follows.

1. There was a tendency to order more copies of expensive and cheaper books. The proposers of expensive books tend to order more copies because they think that such books may not be sanctioned again. More copies than necessary of cheaper books were ordered for the obvious reason that it does not cost much to have more copies.
2. The department which ordered fewer books tended to order more copies per book.
3. There is a tendency among departments to overestimate their re-

quirements. In this way they can extract more funds from authorities. If such estimates are accepted, the result is the buying of more copies.

4. Lecturers proposed books without even glancing through them. Of course we cannot expect them to have read all new publications. Their original requests for requisition of books are based on the information pamphlets sent by publishers and, in rare cases, from reviews of books published in professional journals.

In short, overordering of books is mainly due to suspicion, doubt, and lack of information. The method suggested in this paper will help in removing these shortcomings.

Overordering of Copies

It is believed that buying more copies of a book is worse than buying fewer copies. In buying fewer copies of a book it may not be possible to provide the desired customer service (if that book is really in much demand), but there is still a chance to improve service by buying a few additional copies. It should be noted that this decision will be taken after experience is gained about the demand for the book.

On the other hand, buying more copies of a book is harmful on many counts, some of which follow.

1. It results in spending money on copies which will mostly remain idle. This money could be utilized in buying more books or in buying more copies of those books which are in demand.

2. It results in blocking of useful and scarce shelf space.

3. It results in more work for library staff.

What is the solution? The problem of overordering can be greatly remedied by *effective planning*. Effective planning will involve answers to the following questions: (1) How much should be the total budget for the library? (2) What fraction of the library's budget should be allocated to the purchase of books and periodicals? (3) How should the funds allocated for purchase of books and periodicals be distributed among different departments? (4) How and when should all the copies of a book be ordered?

Questions (1) and (2) are of fundamental importance, and they are not considered in the present paper. Operational research techniques were used in attempting to obtain a solution to question (3). Linear programming was used to find the best allocation.

For the purpose of linear programming formulation, books and periodicals were divided into the following three categories for finding the lower and upper limits of requirement of funds.

1. Most essential books and journals which a department must have in order to function effectively. (This will give the lower limit for the department.)

2. Books and journals which are desirable but not absolutely essential.

3. Books and journals which the department would like to have if funds are available.

The department furnishes the number of copies of each book required. From these categories the lower and upper limits of funds required are decided. From the linear objective function the best allocation of funds is determined.

Once the fund allocated to a department for purchase of books and periodicals is known, the problem is then one of ordering the books in such a manner so as to avoid wastage of funds.

The magic words for this purpose are *planning by participation*. This method ensures active participation of all staff members and library in the planning. The principal value of planning does not lie entirely in the plans that it produces but in the process of producing them. Process is one of our most important products.

Logical Steps of the Planning Process

1. *Estimation and categorization by each department.*—This is generally done by the departmental representative on the library committee, who receives proposals for requisition of books from staff members throughout the year. (See Form No. 1)

The proposer makes clear whether he has read the book or not. If he has not read the book, then only one copy should be obtained for approval. Overordering of books will be greatly reduced if proposers have a chance to read the book once and then assess its usefulness.

FORM NO. 1
NEWCASTLE-UPON-TYNE POLYTECHNIC
BOOK REQUISITION FORM

Department: Mathematics

1. Title of the Book: Decision Theory
2. Author of the Book: D. J. White
3. Publisher: George Allen & Unwin Ltd.
4. Date of publishing: 1969
5. Price of the copy: 48/-
6. No. of copies requested: 2
7. Tick the category in which you would like to include this book or books on this subject.
 - (a) Very essential book
 - (b) Desirable but not absolutely essential
 - (c) Can be purchased if funds available
8. Tick the one applicable.
 - (a) I have read the book and I shall recommend it as a text/reference book.
 - (b) I recommend that a copy of the book should be obtained on 28 days' approval. Final recommendation may alter the number of copies requested.

S. K. Goyal
Signature of proposer

Date 3.5.70.

From the book requisition forms, the departmental representative compiles three lists for the three categories of books. This list is discussed in detail in departmental meetings and the final list is prepared

FORM NO. 2
NEWCASTLE-UPON-TYNE POLYTECHNIC
BOOKS/PERIODICALS REQUEST FORM
SESSION 1970/71

Department: Mathematics
Subject: Operational Research

No.	Title of the Book	Author/ Authors	Publisher	Edition	Price	No. of Copies Requested	Total Cost £.s.d.	Remarks
1	Operations Research: Methods and Problems	Maurice Sasieni, Arthur Yaspar, and Lawrence Friedman	Wiley Inter- national Edition	1959	42/-	1	2. 2. 0	
2	Operational Research Techniques	Douglas White, William Donaldson, and Norman Lawrie	Business Books	1969	95/-	3	9.10. 0.	Text book, 2 more copies are included in group (b) *Mr. S. K. Goyal
3	Introduction to Linear Programming	Walter W. Garvin	McGraw- Hill Book Company, Inc.	1960	68/-	1	3. 8. 0.	
4	Dynamic Programming	D. J. White	Oliver & Boyd	1968	40/-	1	2. 0. 0.	
5	Introduction to Operations Research	C. W. Churchman, Russel L. Ackoff, and E. Leonard Arnoff	Wiley Inter- national Edition	1966	60/-	2	6. 0. 0.	Recom- mended as a text book
6	Decision Theory	D. J. White	George Allen & Unwin Ltd.	1969	48/-	2	4.16. 0.	*Mr. S. K. Goyal
7	Fundamentals of Operational Research	R. L. Ackoff and M. W. Sasieni	Wiley Inter- national Edition	1968	57/-	1	2.17. 0.	

on book/periodical request forms. (See Form No. 2) The lower and upper limits of funds required are also mentioned in the final estimate submitted to the library committee.

2. *Allocation of funds.*—When all the departmental estimates have been received, the library committee decides on the final allocation of funds to the various departments. At this stage operational research techniques can be used for determining the optimum allocation of funds to the different departments.

3. *Books which can be purchased from allocated funds.*—Once the final allocation of funds is known to a particular department, the departmental representative can determine the books which can be purchased from funds available to the department. The problem is to find out the number of copies which ought to be purchased. It is important to mention here that it is impossible to predict the demand for books which are being bought for the first time, and therefore no amount of analytical approach can provide answers with reasonable accuracy. Moreover, the cost of obtaining answers every time may be prohibitive.

4. *Most accepted decision rules.*—As a matter of fact simple decision rules are needed to determine the number of copies to be purchased. The following rules have been discussed with many librarians and they seem to agree with them.

a. Initially order only one copy of a book which has been recommended as a reference book.

b. Do not obtain initially more than two copies of a book which is being acquired for the first time. One copy may be treated as a reference book, and the other may be treated for reference and loan purposes.

c. If the demand for a book warrants purchase of additional copies, then order more copies. Though an analytical approach can provide the best answer, a decision based on intuition at this stage will not be far from correct. The rule of ordering an additional copy if two or more readers have registered themselves on the waiting list is acceptable to most librarians.

d. For books which have not been assessed by the proposer, the library acquires one copy on four weeks' approval. All such books should be sent to the departmental representative who, in turn, gives them to the proposers concerned. The departmental representative makes sure that the library receives the final recommendation in time for necessary action; this is essential for those books which are totally disapproved. In cases where the proposer recommends more copies than he originally suggested, additional funds may be made available, if possible, either from library or departmental funds. The communication between the library and the departmental representatives can be standardized. (See Form No. 3.)

Conclusions

The above procedures will ensure cooperation and effective commu-

nication between staff members and the library. Of course the departmental representative plays an important role as coordinator. It is expected that significant financial savings will be made as a result of planning by participation in addition to better utilization of library space. These savings can be used to buy more books or maintain a reserve fund for future buying, thereby improving the effectiveness of library service.

FORM NO. 3
NEWCASTLE-UPON-TYNE POLYTECHNIC
Final Recommendation Form

Date: 25.9.70

From: Librarian
To: Mr. S. Scott
Department: Mathematics, Statistics, and Computing

The book/books suggested by you is/are being sent to you for final recommendation. It will be appreciated if you could let us know the final recommendations on or before 12.10.70.

Librarian.

No.	Title of Book	Author	Copies Requested	No. of Copies Recommended	Remarks
1	Decision Theory	D. J. White	2	2	
2	Introduction to Linear Programming	Walter W. Garvin	1	1	

Date: 10.10.70.

Signature of Departmental Representative

Approval of Head of the Department must be obtained when number of copies recommended exceeds copies requested.

High-Reduction Microfiche for Libraries: An Evaluation of Collections from the National Cash Register Company and Library Resources, Inc.

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Librarians should not reject the collections of high-reduction fiche being offered by either the National Cash Register Company or Library Resources, Inc., without considering seriously what this technology and the contents of the collections offer. The advantages and disadvantages of high-reduction microfiche are considered, as well as the reading machines required to view them. The content of the collections offered by these two major micropublishing firms is analyzed; the marketing strategies, cost, and bibliographical aids offered are compared; and some conclusions are presented based on the analysis and comparisons made.

BOOK COLLECTIONS REPRODUCED on high-reduction microfiche are now being offered to librarians by two major micropublishers: Library Resources, Inc. (LRT), a subsidiary of Encyclopaedia Britannica, and the Educational Products Department of the National Cash Register Company (NCR).

Reduction ratios of conventional microfiche range from about 15:1 to about 40:1.¹ For example, the federal standard sets a maximum of 20:1; the NMA standard ratios are 20:1 and 24:1; and the standard ratios adopted by ALA for microfilm—including fiche—are 14:1 and 20:1.^{2, 3, 4} Consequently, most of the fiche readers now used in libraries have magnification ratios that are too low to make high-reduction fiche legible. Indeed, few fiche readers currently on the market can be obtained with magnification ratios higher than 50:1. (Atlantic Microfilm Corporation's model F-66 and F-66A readers, with a magnification ratio of 70:1, are exceptions.⁵) Hence, any library that buys a collection of high-reduction fiche—from either of these two vendors—must also buy special readers. This, naturally, tends to discourage the purchase of high-reduction fiche collections. But no librarian should reject them without first considering seriously what high-reduction

fiche—and the book collections recorded on them—offer to libraries.

Disadvantages of High-Reduction Microfiche

Let us consider the disadvantages of high-reduction fiche first. High-reduction microfilming requires much more care and more technical skill than filming at low-reduction ratios. The technical problems involved in the production of high-reduction fiche are so great that only two years ago another writer was able to say: "Ultra or super microfiche systems at present are very interesting but not practical. It will be quite some time before substantial collections will be available in this form."⁶

Obviously, both LRI and NCR have solved these technical problems, and each has done so in a different way. NCR utilizes photochromic materials (which exist in either a colorless or a colored state, and can be changed from one state to the other by the action of light) in a process that has been described in some detail for librarians by Hawken.⁷ As a name for this process, it has adopted the initials PCMI, from photo-chromic-micro-image.

LRI's process is quite different.

... in the Library Resources program the volumes contained in the library are first filmed using the 35 millimeter planetary camera at reduction ratios of 5.5x to 9x depending on the original information area size. This work is done using a camera and lens having a 120 lines per millimeter minimum resolution. The output of this camera is then photographed again using a 10x step and repeat camera with resolution capability of over a 1000 line[s] per millimeter. The resultant third and fourth generation copies have sufficient resolution to provide a sufficiently high quality image on a reader screen at a magnification of 90x to meet the system design requirements.⁸

The cost of each of these processes is higher than the cost of conventional microfilming—so much so that neither LRI nor NCR can use high-reduction fiche in the sort of "demand publishing" in which University Microfilms specializes, which requires low "front end" costs.⁹ The economics of high-reduction microfilming limit its use to publishing—or republishing—in large volume, so that its heavy initial expense can be recovered through the economies of mass production. For this reason both NCR and LRI have chosen to market collections, rather than individual works, and have tried to assemble collections that are attractive to a wide range of libraries.

A serious problem in the use of high-reduction fiche is the susceptibility of small images to damage by scratches or dirt. Both firms have solved this problem by enclosing their fiche in a tough mylar outer layer which makes them practically indestructible. (The author did manage to inflict severe damage on a sample NCR fiche by stabbing it with scissors for ten minutes, but this is hardly normal library practice.) They actually are more wear resistant than conventional microfiche, and are—in this sense—much better suited to library use.

Another possible disadvantage associated with the use of high-re-

duction fiche was recognized by Verner Clapp some years ago: "The cost of the elaborate equipment needed for projecting them for use might, however, well nullify the savings obtained by the reduction."¹⁰ Clapp also suggested that high-reduction fiche readers might prove to be exceptionally bulky.¹¹

In fact, neither of these predictions has come true. The readers developed by both LRI and NCR compare favorably with lower magnification readers available from other firms, in ease of operation, maintenance, cost—they aren't the cheapest available, but neither are they the most expensive—and size. Both of LRI's two readers are exceptionally compact. In fact the smaller of the two—called the "lap reader" for an obvious reason—is one of the smallest readers that is suitable for library use. It weighs only four and one-half pounds, and, with a 7" x 10" screen, it is comparable in size and portability to a collegiate dictionary.

Advantages of High-Reduction Microfiche

The advantages of microforms to libraries are well known, and at least some of these benefits are increased by the use of high-reduction filming.

1. *Microform use conserves space.* It is said that "microfilm can achieve space savings of 95% plus as opposed to housing the original documents."¹² High reduction obviously can increase this space saving. It is true that Clapp has argued that space savings through use of high-reduction fiche would be unimportant, in practice:

For example, at a 10-diameter reduction the reduced image occupies only 1 per cent of the area occupied by the original and the (area) space-saving is 99 per cent. At a 100-diameter reduction the area of images is reduced to one-tenth of 1 per cent of the original and the saving is 99.9 per cent. But to gain the additional nine-tenths of 1 per cent has required the transition from a comparatively easy technique to a very difficult one. Space-saving, then, is not the reason for using high-ratio reduction.¹³

In fact, however, the space saving obtainable through high reduction that concerns the librarian is not the saving in fiche area. It is the saving in library space. As Clapp himself shows (see p. 37) a fiche that would hold 100 images at 10:1 reduction would hold 10,000 images at 100:1 reduction. Hence, a single 100:1 fiche could replace one hundred 10:1 fiche, and the use of the former in place of the latter could result in a saving of 99 percent of the storage space allotted to microfiche—certainly not an inconsiderable saving in a collection of any great size.

2. *Microform use helps to preserve library collections.* Microforms are tough and durable. "Microfilm has a life expectancy equal to that of the finest rag paper, anywhere from 300 to 500 years"; i.e., it can outlast many of the original documents it might replace.¹⁴ This char-

acteristic is one that both the LRI and the NCR fiche share with other forms of microfilm.

Where microforms duplicate but do not replace original documents they can help to preserve such documents by rendering much of the service that otherwise would have to be obtained from the originals. Microform materials can take harder use and require less rigorous control than materials in other forms because they are easily replaced. Unlike conventional roll microfilm, high-reduction fiche can't be duplicated in the library, but can be kept "in print" indefinitely by their publishers.

3. *Full-size copies can be made easily from microforms.* All types of microforms can be copied easily by the appropriate reader-printers, and high-reduction microfiche are no exception. NCR already has a high-magnification reader-printer on the market which produces good, readable copies—described by a British librarian as "usable but not beautiful."¹⁵ LRI's reader-printer is expected to be available early in 1972.

4. *Microforms are often easier to use than the original documents.* Any experienced librarian can attest that original documents are often heavy, bulky, and awkward to use. They may also be brittle or frail, and require very careful handling. In these cases, a microform copy often may be preferred over the original by the user. Something that many librarians fail to realize, however, is that the microcopy actually may be more readable than the original. Modern microforms, with good resolution and a modern viewer, may produce an image that very nearly equals the quality of the original. At the same time the reader image may be larger, and hence easier to read, than the original. The image is larger whenever the enlargement ratio of the reader is greater than the original reduction ratio of the microform. This enlarged blow-back is especially desirable where the original documents are printed in small, closely set type, as are many of the books included in the LRI collection and in NCR's *Library Collections*. LRI deliberately planned to provide this enlargement, which it points out as one of the desirable features of its system.

Statistical studies of book page sizes show that with a substantial percentage of the volumes which will make up the *Library of American Civilization*, the size of the page will be larger on the screen of the portable reader than the original page, with a consequent gain in legibility and ease of reading. With the desk-top reader all but a small percentage of all pages will have a screen image substantially enhanced in size over that of the original, but not so large as to cause needlessly tiring eye-movements in the course of sustained reading.¹⁶

NCR's promotional material does not stress the advantage of an enlarged blow-back, but its system also provides it.

5. *High-reduction microfiche can be lower in cost than conventional microforms.* Microfilming at high-reduction ratios is more costly than conventional microfilming. Even so, perhaps the greatest advantage

over low-reduction filming that it offers to micropublishers is a cost advantage. As Clapp put it:

The real advantages should derive not from space-saving but from inexpensiveness of dissemination. Let us suppose, for example, that an 8" x 10" photographic print costs \$1. At a 10-diameter reduction, this print could hold the images of 100 8" x 10" original pages, and the per-page cost would be 1¢. At a 100-diameter reduction, the print would hold 10,000 images, and even if the cost of the print were doubled (because of the extra care required in processing), the per-page cost would still be only .02¢. At a 200-diameter reduction the print would hold 40,000 images, and if the cost of the print were now tripled over its original price, the per-page cost would still be only .0075¢.¹⁷

Of course such cost reductions can be achieved only through mass production, but they are possible. NCR's PCMI process puts more than 3,000 frames on a single 4" x 6" fiche; and, as an illustration of the low costs possible through high-reduction microfilming, NCR says, "On a mass production basis, where a great number of distribution transparencies are needed, the cost per copy drops close to one dollar . . . about 1/30 of a cent per page."¹⁸

6. *High-reduction filming can lessen some of the drawbacks that librarians find in the use of microfiche.* One of the complaints from librarians about microfiche is that they are easily smudged or damaged while being handled.

Fingerprints of users . . . often smudge the film. Fingerprints cause the accumulation of "goo" on optical flats, which, in turn, accelerates the gathering of dirt and resultant film damage. Microfiche, microcards and microprint cards all must be individually handled while being positioned in the readers and when they are removed from the machines. Since the average microform sheet contains many fewer pages of [sic] frames than an average microfilm roll, microform sheets are generally handled more frequently during machine viewing. Added handling increases the hazard of contamination of the microforms and increases the danger of damage both to the sheets and to the machines used in viewing them.¹⁹

Since high-reduction fiche contain far more frames than ordinary fiche, their use does not involve so much handling of individual fiche by the user, hence they are less liable to fingerprint smudges. Moreover, the plastic laminate with which both NCR and LRI coat their fiche renders them practically immune to any damage from ordinary use. They can get dirty, of course, but they are easily cleaned. (The author has rinsed PCMI fiche under a hot water tap without any apparent ill effects.)

Filming problems are a second cause of dissatisfaction with fiche among librarians. A study of microforms in libraries showed that:

The most repetitive complaint about the use of microform sheets for library materials was the inordinate amount of time required to replace the sheets in proper order after each use; loss or improper filing of the microform sheets often resulted.²⁰

The recording of an average book-length document in conventional microfiche (e.g., fiche meeting the COSATI or NMA standards) requires the use of trailer fiche, as there are too many pages to be recorded on a single fiche. Where several fiche are used together to record a single document they are usually kept together, in order, in an envelope. This envelope, in turn, is then stored in a file with similar envelopes. Under these conditions, it is relatively easy to misfile a single fiche by putting it into the wrong envelope—and it might be very difficult to locate the missing fiche. Then, too, it would be easy to lose a single fiche from an envelope without being aware of the loss.

The obvious method for minimizing this problem is to use a higher reduction ratio so that a single fiche could contain all of any document likely to be recorded. Consequently, for library use, a "library fiche" has been proposed, with "a reduction ratio of 50 or 60 to 1."²¹ Use of this fiche, which LRI calls a "Microbook," would practically eliminate the need for trailer fiche and, with them, most of the serious problems involved in keeping a file of microfiche in order.

LRI uses what it terms "bookrange reduction" ranging from 55:1 to 90:1 to create just such a library fiche: 1,000 frames on a 3" x 5" (75 mm x 125mm) piece of film. This allows LRI to adhere closely to the principle of "bibliographic unity"—putting only one title on a fiche except for special material—and to minimize the number of trailers utilized.^{22, 23}

NCR has gone to the opposite extreme in order to take full advantage of the high reductions possible with the PCMI process. It uses ultimate reduction ratios of about 120:1 in filming its library collections and so can record over 3,000 pages on its 4" x 6" (actually 105 mm x 148.75mm) "Ultrafiche." It puts several books—the average is about seven—on each fiche. Hence its collections are somewhat less flexible in use than LRI's. On the other hand, it goes even further than LRI in simplifying file maintenance.

Because of their small size, fiche pose another problem for librarians. They are especially vulnerable to unauthorized removal from the library. High-reduction microfilming does not help to solve this problem, but it does help to make replacements less costly. Both LRI and NCR plan to keep the material in their collections permanently "in print," and will sell duplicates of individual fiche that may be lost—LRI for \$1.50 per Microbook, and NCR for \$6.00 per Ultrafiche.

The Readers

The greatest single drawback to the use of microforms, when compared with the use of books, is the need to employ a reading device with them. Readers are even more necessary—if that is possible—with high-reduction fiche than with other microforms, but these readers are neither more costly nor more difficult to use than those employed with other microforms. In fact, users may consider LRI's lap reader less of a drawback than most other readers. It is being manufactured

for LRI by Technicolor, and will sell for less than \$150. Because of its portability, its simplicity in operation and maintenance, and its low cost, LRI calls it "the key that will free Microbook materials for circulation."²⁴ Since it is suitable for use outside the library, in homes, dormitories, or offices, LRI hopes that it will be bought by libraries and circulated like a book, just as some libraries now circulate cassette tape players and film projectors.

LRI's larger reader, for table-top use, is manufactured by the Du-Kane Corporation. Its price is under \$400. It has an enlargement ratio of 90:1 and an 8½" x 12" screen.

The NCR 455 PCMI Ultrafiche reader produces images at a 150:1 magnification on an 11" x 11" screen. A simple X-Y indexing system enables the operator to locate a specific work quickly on the fiche. Like Ultrafiche, this reader already is in worldwide use in nonlibrary applications. Among its users are the Ford Motor Company and Sears Roebuck; both publish parts catalogs on Ultrafiche. (You probably could see an NCR 455 in use at the customer service desk of your local Sears store.) The price of this reader is \$650, but educational and cash discounts can reduce it to \$552.50.*

The Ultrafiche reader-printer is the NCR 455-21, an adaptation of the Ultrafiche reader. It produces copies by an electrostatic process in about seven seconds at a cost of about 2½ cents. It can be adapted to coin operation (using either nickels or dimes). It has a list price of \$650 but, like the price of the reader, it may be reduced by discounts. Then too, NCR has extended payment plans for both the reader and the reader-printer.

Today there is no reader that can be used with both Microbooks and Ultrafiche. One of LRI's two readers must be used with the former, and the NCR 455 with the latter. Soon, however, there will be at least one reader available that can be used with both of these fiche and with fiche of lower reduction ratios as well. NCR is expected to have a new machine on the market late in 1971, which with three interchangeable lens systems will enable its users to read fiche that range in reduction ratio from 18:1 to 225:1. The author has seen a prototype of this reader, which in appearance is much like the NCR 456-300 (not an Ultrafiche reader). The latter machine is a portable reader designed originally for office rather than library use. It weighs fifteen pounds and has a 10½" x 9½" screen. The selling price of the new reader has not been announced yet, but it is expected to be lower than the price of the NCR 455.

NCR's Collections

NCR's PCMI *Library Collections Program* includes five series:

* All prices mentioned in this article were obtained by the author from NCR or LRI representatives. They are subject to change, and some may vary from one purchaser to another, depending on the terms of the purchase contract, the nature of the material purchased, and the volume of material purchased.

American Civilization; Literature-Humanities; Social Sciences; Science and Technology; and Government Documents. NCR plans to publish in Ultrafiche a collection of works in each of these series each year. Its first five collections were published in 1970, and the second five in 1971. All ten of these collections are available for purchase, either individually or in any combination.

The materials in these five series are classified according to the Library of Congress classification scheme. Together, their scope is universal, but the subject range of the collections published in any one year may be much less than universal. For example, the literature sections of the 1970 and 1971 collections are composed chiefly of works on English literature. Works on American literature and on other European literatures are included, to a lesser extent, but there is nothing in either collection on literature in non-European languages. Of course any gap in subject coverage like this may be eliminated by the collections published in succeeding years.

The collections already published in the *American Civilization* series deal with the history and description of the United States, and include biographies of prominent Americans. Those in the *Literature-Humanities* series include works on philosophy and religion, music and the fine arts, philology, and literature. The contents of the music and literature sections are primarily works about these subjects—histories, criticisms, and commentaries—rather than examples of music or literature. Some examples of literary writing are included, however. For example, in the 1970 collection, there are the complete works of several writers, including Rousseau, Voltaire (in 70 volumes), Carlyle, De Quincy, Walter Pater, Oliver Wendell Holmes, and Harriet Beecher Stowe.

The *Social Sciences* collections include works on history—other than U.S. history—geography, anthropology, folklore, economics, sociology, political science, law, education, and psychology. The *Science and Technology* collections include a number of works on medicine, as well as on the pure sciences and technology. The *Government Documents* collections—at least, the 1970 and 1971 collections—include only publications of the United States government. Government publications are included in other collections as well, when their subject matter is appropriate; e.g., *Public Papers of the Presidents of the United States: Truman, Eisenhower, Kennedy, Johnson* (27v., Washington: G.P.O.) is in the political science section of the 1970 *American Civilization* collection.

Each of the works in these collections has been found in at least two “recognized standard subject bibliographies” like these used for the *American Civilization* series:²⁵

Bartlett, John Russell. *The Literature of the Rebellion*. Boston: Draper & Haliday, 1866.

Carty, James, ed. *Bibliography of Irish History, 1912–1921*. Dublin: Govt. Stationery Office, 1936.

Handlin, Oscar, et al., eds. *Harvard Guide to American History*. Cambridge, Mass.: Harvard Univ. Press, 1962.

Sonnenschein, William S., ed. *The Best Books*. 3rd ed. 6v. London: Routledge, 1910-35.

All but four of the bibliographies used in making up the 1970 collections were published either in the United States or in England. Even so, over 13 percent of the titles included in these collections are in western European languages other than English.

Nearly all of the material in the *Library Collections* so far was published originally before 1940. However, about 85 percent was published after 1900 and less than 10 percent before 1850. A very few works were published before 1800.

Each individual collection in these series consists of 100 Ultrafiche, and they average about 700 volumes per collection. The number of titles and volumes does vary considerably from one collection to another, however. For example, in the 1970 *Science and Technology* collection there are 294 titles in 561 volumes, while there are 836 titles and 1,382 volumes in the 1970 *Literature-Humanities* collection.^{26, 27}

Each Ultrafiche in the *Library Collections* series contains several works on a single subject, which is identified by a Library of Congress class number in the upper-left corner, followed by the corresponding subject heading. In the upper-right corner is an Ultrafiche call number assigned by NCR. These Ultrafiche are intended to be kept in call number order and retrieved through LC catalog cards filed in the library's main catalog. A complete set of cards for each work—ready for filing—is supplied by NCR with every collection.

The basic price of each collection is \$1,200, which includes the cost of the accompanying catalog cards. It may be reduced by discounts, and NCR has an extended payment plan for this too.

The *Library Collections Program* was developed by NCR for sale primarily to academic libraries, and especially to those that are new or are expanding rapidly. NCR has also developed two other series, which make up its *College-Bound Program*. These series were intended for sale to school libraries, but they might be equally valuable in some public or academic libraries.

The *Essential Books* series in the *College-Bound Program* is like the *Library Collections* series. It consists of a series of annual collections, which are expected to average about 500 volumes each. (The 1971 collection is the first to be published; it contains 422 titles in 547 volumes.²⁸) The price of the collections in this series is \$550. The works included in the 1971 collection are of the same type as those in the *Library Collections* and were selected in the same manner; each is listed in two or more standard bibliographic sources. The scope of this series is probably intended to be as broad as that of the *Library Collections*, but the first collection consists mainly of works on U.S. his-

tory, description, and biography (96 titles); English literature (115 titles); and science (92 titles).

Unfortunately, the contents of the first collection in the *Essential Books* series are duplicated in *Library Collections* to some extent—though it is obvious that *Essential Books* is not simply an abridgment of the larger program. For example, of the nine titles listed under *U.S.—Description and Travel* in the *Essential Books* catalog, five are also listed in the 1971 *Library Collections* catalog; nine titles are listed under *Arthurian Legends* and five under *Astronomy*, and while none of these are duplicated in the *Library Collections* for 1971, two of the former and three of the latter are in the *Library Collections* catalog for 1970.^{29, 30, 31, 32, 33} This duplication is regrettable because any library that buys the *Library Collections* might also elect to buy collections in the *Essential Books* series. Indeed, some prospective purchasers of the *Library Collections* might prefer to begin by buying the *Essential Books*.

The second part of the *College-Bound Program* is the *College Catalogs* series. The first collection in this series, published in 1971, contains catalogs from “about five hundred colleges,” ranging from junior colleges to major universities.³⁴ In 1972 a second collection of catalogs, from another 500 schools, is to be published. Thereafter, these two collections will be updated in alternate years. Current catalogs for the first group of schools will be published in odd-numbered years and for the second group, in even-numbered years.

The price of the first *College Catalogs* collection is \$250 (both of the 1971 *College-Bound* collections can be purchased for \$700) and its value is obvious to anyone who has ever maintained a collection of catalogs in a library, whether it be a school, public, or academic library.

NCR is developing another Ultrafiche publication that should be of interest to librarians. Although it is not now available for purchase, it is being tested in British libraries. This is a current bibliography of books in English, compiled from MARC data generated by the Library of Congress and the British National Bibliography. The main sequence of entries in this bibliography is arranged in Decimal Classification order. It is planned as a throwaway bibliography, with new entries interfiled among those that went before, on new Ultrafiche. During the British experiment the Ultrafiche are being discarded and replaced at six-week intervals.³⁵

LRI's Collection

NCR and LRI have much in common. They share the same basic problems in their efforts to fill library needs with high-reduction microfiche reproductions. But LRI's marketing strategy is quite different from NCR's; consequently, their products, which seem very much alike, are really quite different.

Where NCR has defined a group of subject areas and planned to publish a series of relatively small collections in each area, LRI plans

to publish a series of larger collections, each on a different subject, and each one independent of the others. So far, LRI has produced only one of these collections, the *Library of American Civilization*, though two others are in preparation, and others are being planned. The two collections in preparation are *Medieval Civilization* and *English Literature*.³⁶ Presumably, these collections and those that follow them will be similar to the *Library of American Civilization*.

The *Library* is limited to works about the United States and American life, and works by Americans—as evidence of American thought—before 1914. Within these limitations, its scope is quite broad, as this list of its subject subdivisions shows.

- Politics and Government
- Constitutional History
- Foreign Affairs
- Military History
- Reform
- Intellectual History
- Science and Technology
- Education
- Religion
- Afro-Americans
- American Indians
- Immigration and Minorities
- The Frontier
- The South
- Agriculture
- Business
- Labor
- Literature
- Music
- Visual Arts
- Architecture
- The City
- Manners and Customs
- Local History
- Early Exploration

In addition to the works listed in its catalog under these subject headings, the *Library* includes runs of sixty-two periodicals like the following.³⁷

The American Magazine and Historical Chronicle. Boston, 1743–46.

Godey's Magazine. Title varies, 1830–1860. 60v.

Overland Monthly and Out West Magazine. San Francisco, Overland Publishing Company: etc., etc., 1883–1905.

Scientific American . . . New York, Munn & Co., 1845–1905. 120v.

It also includes an added documents collection. In contrast to NCR's

Government Documents series this collection is composed chiefly of documents other than federal publications, e.g.:

Calendar of (N.Y.) Council Minutes, 1668–1783. N.Y. State Library, Albany, 1902.

The Jesuit Relations and Allied Documents: Travels and Explorations of the Jesuit Missionaries in New France, 1610–1791. Cleveland, The Burrows Brothers Company, 1896–1901. 73v.

Proceedings of the Sessions of the General Assembly of the Knights of Labor, 1878–1897.

South Carolina (colony) Assembly, Journal of Commons House of Assembly of South Carolina, 1692–1727. 19v. Columbia. 1907–1946.

All of the government publications in the *Library* aren't listed in this collection. The majority of them are scattered throughout its various subject areas.

The *Library* contains approximately 20,000 volumes, recorded on the same number of Microbooks. Its more than 15,000 titles were selected by a team of fifty scholars. Its contents are, on an average, older than the works in the *Library Collections*. Only about 2 percent of its titles were published after 1920, though a few of the editions included were published in the 1940s and 1950s. Eighty-five percent were published before 1900, and nearly ten percent before 1800. A few of the works included date from the sixteenth century. Most are American in origin, and less than 1 percent of them are in other languages than English.

Some parts of the *Library Collections* cover subject areas also covered in the *Library of American Civilization*. In these areas, many of the titles in the *Library Collections* are also included in the *Library of American Civilization*. For example, of a sample of sixty titles in NCR's 1970 *American Civilization* collection thirty-seven are also in the catalog of the LRI collection. On the other hand, in other areas there is much less duplication. For example, in NCR's 1970 *Science and Technology* collection there are 294 titles; of these, only one is listed in the Science and Technology section of the *Library of American Civilization*—and that one in a different edition.

In its collections, NCR is seeking to provide "monographs, source materials, and treatises in every major discipline."³⁸ Its emphasis, however, is on major works that are frequently cited—works of the sort that every serious student needs to know within his own discipline. The *Library of American Civilization* contains works of the same type; but, in addition, it contains a great mass of contemporary writing—directories, tracts, sermons, pamphlets, and propaganda. For example:

The American Alarm, or the Bostonian Plea, for the Rights and Liberties, of the People. Humbly Addressed to the King and Council; and to the Constitutional Sons of. . . . Boston, Printed by D. Keeneland, and N. Davis, 1773.

A Sketch of the Origin and Progress of the Causes Which Have Led to the Overthrow of Our Union . . . Washington, D.C., 1861.

Serious Facts, Opposed to "Serious Considerations," or, The Voice of Warning to Religious Republicans . . . 1800. New York, 1800.

Livermore, Abiel Abbot, *Lectures to Young Men on Their Moral Dangers and Duties*. Boston, J. Munroe and Company, 1847.

Ragan, John, *The Emigrant's Guide to the Western States of America*. 2d ed. Edinburgh, Oliver & Boyd; etc., etc., 1852.

Duer, William Alexander. *A Reply to Mr. Colden's Vindication of the Steam-Boat Monopoly*. Albany, Printed and pub. by E. and E. Hosford, 1819.

The *Library's* literature section contains a wide range of American writing—poetry, drama, and prose by authors ranging from Henry Adams to Constance Fenimore Woolson. Both well-known and little-known writers are included. The *Bay Psalm Book* and Samuel Willard's *A Compleat Body of Divinity* are here too. The section on music is also larded with examples, e.g.:

Beadle's Dime Songs for the War. New York, Beadle and Company, 1861.

Christy, Byron. *New Songster and Black Joker*. New York, 1863.

Hopkinson, Francis. *Seven Songs for the Harpsichord or Forte Piano . . .* Philadelphia, 1788.

Each Microbook in this collection is identified by a shortened form of the author's name and the title, printed at the top of the fiche. They are intended to be filed in alphabetical order. Each Microbook is stored in an envelope with a complete Library of Congress catalog entry printed on its face. As aids to retrieval, five sets of book-form catalogs—in which each work is listed by author, title, and subject—are supplied with the *Library of American Civilization*. Ten sets on fiche of the same catalogs and a "Biblioguide" topical index to the collection are also included. The price of the *Library*, with these catalogs, is \$21,500. Catalog cards aren't included in this price, but a complete set of cards for the entire collection can be purchased.

Conclusion

LRI and NCR are offering competing products. Which of the two is the better? The individual library must answer this question for itself. Both firms are reputable, and both groups of products—readers and fiche collections—are good. Each has some advantages relative to the other, or might suit an individual librarian and library better than the other.

The cost of LRI's *Library of American Civilization* and NCR's *Library Collections* is about the same, slightly more than a third of a cent per page. And that's cheap, in comparison with print or conventional microforms.

Neither of these collections is a library in itself. Both are intended only to support or to enrich existing libraries and are expected to be used with books and other record forms. The *Library Collections*, especially, are destined to be incomplete in themselves. NCR generally excludes from them any works, however useful, that can be purchased from other reprint sources for \$15.00 or less; it expects such works to be obtained elsewhere by libraries.

Both collections have value—if properly used—for any library that supports or prepares people for higher education, including public libraries. But one might describe NCR's collections as resources for students, and LRI's collection—which contains more source material—as a resource for scholars. The *Library Collections*, then, might be more attractive to junior colleges and other undergraduate schools, and the *Library of American Civilization* (and the collections that will follow it) to schools that support graduate study.

Both collections should be welcome additions to the new library. They would add works that are practically unobtainable from any other source. Paradoxically, however, these collections should be even more valuable additions to well-established libraries with strong collections. Books gain in utility by being associated with other similar books, and the individual works in these collections would be much more useful if added to a library that is already rich than if added to a library that is relatively poor. And it is unlikely that any library has all of the works in these collections. For example, the University of Kentucky's library, which boasts of more than a million volumes and is especially strong in history, has only about 60 percent of the titles in the 1970 *Library Collections*, and about 50 percent of the titles in the *Library of American Civilization*.

Finally, these collections really should not be regarded as alternatives. They do overlap to a degree, but they are also complementary. So the library that decides to buy either should give serious consideration to the acquisition of the other as well.

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The Developing National Library Network of Canada*

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I WELCOME this opportunity to tell you something about recent library developments in Canada, about the main problems confronting us at the national level and what we are trying to do about them at this time. I shall emphasize more particularly the policies adopted so far by the federal government with a view to promoting the development of a better integrated national information network and some initiatives taken recently in order to implement these policies.

I was told by Mr. Cook that Mr. Maurice Line would also speak at the same meeting. Since he and I would be addressing ourselves to an American audience, and since we would both be talking about networks, I felt that it was essential to avoid any misunderstanding between us and our audience as to the meaning of the word; so I looked it up in a dictionary common to the three nations, that is, one which would have appeared before the American Revolution. (Or should I say the War of Independence?) I could find no better authority to consult than Samuel Johnson, and I found in his famous *Dictionary* a definition in which, I am sure, we will all concur: "NETWORK—Anything reticulated or decussated, at equal distances, with interstices between the intersections." Surely, I said to myself, Mr. Chairman, there will be no disagreement between the two speakers and the audience on the acceptability of such an authoritative definition!

Seriously, you will find, I am sure, that most of the basic problems facing Canadian libraries are the same as those confronting U.S. libraries, as well as U.K. libraries, and, indeed, those of the OECD countries. However, there are from country to country such differences—geographical, historical, social, economic, cultural—that each nation must find for herself those solutions best suited to her particular needs which the human, financial, and other resources available to her at a

* Revised text of material presented at the Joint Program Meeting of IRRT/ISAD/RTSD of the American Library Association at its Annual Conference in Dallas, June 21, 1971, under the chairmanship of C. Donald Cook, Council of Ontario Universities, Toronto.

given time make possible. There is simply no single ready-made recipe capable of curing all evils everywhere once and for all. For systems are not only books, catalogs, and hardware, they are also people. People are in turn members of individual evolving societies so that information systems and networks must be dynamic, they must respond to changing needs, they must be capable of handling dynamic information and knowledge.

There is no need for me to attempt to compare in detail the situations in the U.S., the U.K., and Canada. You all know that Canada is larger in area than the United States, and that it is forty times the size of Britain. The population of the U.S., on the other hand, is ten times, and that of the U.K. two-and-one-half times, that of Canada. It follows that the developing and operating costs of any communications system—be it highways, railroads, telephones, or what not, library networks included—are more expensive per capita in Canada than anywhere else in the world. Furthermore, we have nowhere any library whose collections could be compared to those of the Library of Congress or Harvard, or to those of the British Museum or Oxford's Bodleian; we have two official languages, which create problems, of course, but offer great opportunities too; we have no federal department of education, but ten provincial ones which have full jurisdiction over their respective educational systems. In short, it seems that in a country whose own geography is a daily challenge, we Canadians specialize in the art of making the development of national policies as complicated as possible.

Nevertheless, in a review of scientific and technological information policy in Canada conducted last year by the OECD (to be published shortly), one can read: "Canada has a large number of libraries, information and documentation centres, data banks, etc. and can be justly proud of its achievements." It is gratifying to hear such remarks. The OECD study also states that "the new National Library Act, the Cabinet Decision of the 19th December 1969, and the setting up of 'Information Canada,' together represent an important step forward and a turning point in the evolution of Canadian information policy." It is a fact that we are tackling the challenging information problems with greater energy than ever before, and with an improving machinery to better coordinate the existing programs and to develop new ones. I am nevertheless aware of the shortcomings of many existing programs, as well as of the need to develop others in disciplines where they are most inadequate. I am no less conscious of the fact that the existing federal library policies are general policies, that they are not yet specific enough with respect to many problems, and that they should be further refined as we proceed to implement them in the years ahead. We all realize, I am sure, that we live at a time of accelerated change, and I suggest that it is better for governments to have policies which are flexible enough to allow their agencies to cope with the growing and evolving needs of those they are meant to serve.

In retrospect, 1969 and 1970 were important years for those of us concerned with library developments in Canada. In addition to new legislation and government directives, there appeared in those two years important studies and reports which supplemented earlier surveys and culminated a process of deep examination of our standing in such fields as science policy, cultural policy, and information needs. While self-examination is not entirely finished, we have moved into the phase of implementation, and the next few years will surely reveal the results of our unspectacular but steady, consistent development.

It is accordingly impossible for me to give you a clear and definitive answer to the many questions which are exercising our minds, for we do not yet claim to have the solution to all our problems—we certainly wish that we could. Nor is it possible for me, in my official position, to discuss in public as freely as others might the merits and shortcomings of those programs for which I am responsible, and I must limit my observations to those policies and initiatives which have received the blessing of the Canadian government.

There are also many situations and problems in the library world in Canada, especially those of a professional, local, or regional nature, about which I am naturally concerned personally but about which I shall say nothing here. I can assure you that I am busy enough attempting to solve those problems which are clearly my responsibility not to attempt to trespass on the preserves of other jurisdictions. For that reason, I shall not speak here of the National Library of Quebec, which publishes a current provincial bibliography and plans to issue a retrospective one as well.

As some of you know, there was no National Library of Canada until 1953. When the initial National Library Act came into effect eighteen years ago, the National Library took on two basic responsibilities which occupied the full efforts of the staff, or at least a very large portion of their time and energies during the fourteen years which were to pass before the 1967 opening of the National Library building in Ottawa: (1) the compilation and publication of a national bibliography; and, (2) the building and maintenance of a national union catalog. Since then the national bibliography, *Canadiana*, has come to be recognized as one of the best in the world. It now covers books, pamphlets, microforms, films, phonograph records, and government publications (both federal and provincial); the total number of entries for 1970 was in excess of 16,000. Next year, maps will be added. The *Canadian Union Catalogue* now has between eleven and twelve million records representing some three to four million titles and showing locations of books in over 300 Canadian libraries; it is growing at the current rate of 5,800 cards per day. Last year, requests for the location of titles in Canadian libraries exceeded 100,000, an average of 425 per day; 77 percent of the requests were held by Canadian libraries. There are now seventy-eight libraries which belong to the Telex network, and 56 per-

cent of all the requests received came by Telex, which illustrates the growing importance of rapid communication. Of the 78,497 location requests which were found in Canadian libraries, the National Library filled 24 percent from its own collection through interlibrary loans, a higher percentage than ever before.

The national bibliography and the *Canadian Union Catalogue* are obviously not the only services developed and offered by the National Library. We have published a union list, *Periodicals in the Social Sciences and Humanities* and a *Union List of Non-Canadian Newspapers Held by Canadian Libraries*; both will be brought up to date in the near future. We also publish an annual list of *Canadian Theses Accepted by Canadian Universities*; we have also reproduced some 7,500 Canadian theses on microfilm. Incidentally, I might mention that a basic difference between the National Library and the Library of Congress is that we are not a legislative library. Our legislative library is the Library of Parliament, a completely separate institution which is responsible to Parliament alone. As National Librarian, I report to the Secretary of State, as do the heads of all other federal cultural agencies. The responsibilities of our Secretary of State are confined to domestic affairs and include citizenship, the bilingualism program, and such agencies as the Canadian Broadcasting Corporation, the National Film Board, the National Museums and the National Gallery, the National Arts Centre, the Canada Council, the Public Archives, and the National Library.

When the National Library was established in the early fifties, the library of the National Research Council (NRC), now officially the National Science Library, was already about thirty years old and functioning to some extent as a national library of science and engineering. It was agreed some seven years ago that the excellence of the National Science Library would be built upon—it was also given the responsibility for developing a national bibliographic center for medical sciences—while the National Library concentrated on being the bibliographic information focus of the country and on building gradually toward excellence in its collections in the humanities, the arts, and the social sciences. The National Science Library is essentially an information transferral agency whose resources and services are specifically designed to supplement local information services and not to supplant them. More recently it has developed a nationwide SDI service, using a large computer base which is scanned at regular intervals and matched against individual interest profiles.* The National Science Library in Ottawa is considered to be one of the best centers of scientific and technical information that may be found anywhere in the

* The base includes "Chemical Titles," "CA Condensates," "ISI Source," "Citation Tapes," "INSPEC Tapes," "Bio Abstracts," "Bio Research Index," "Medlars," "MARC Tapes." The software of the CAN/SDI system is now used by several foreign institutions and companies in the U.S., the U.K., Belgium, and the Netherlands.

world today. Its principal publication is the *Union List of Scientific Serials in Canadian Libraries*.

To a lesser extent, some departmental libraries in Ottawa have strong collections in specific subject fields in which they provide good services. These federal libraries do not only serve the government of Canada, they have the broader role of reinforcing services offered by other libraries—provincial, public, university, special, and so on.

No survey encompassing all types of libraries in all parts of Canada was ever made, but all partial surveys emphasize the inadequacy of library services in Canada. Woodhouse and Kirkconnell in 1947 deplored "the isolated fragmentation of our resources," and Edwin Williams, in the survey of the "Resources of Canadian University Libraries for Research in the Humanities and Social Sciences" completed fifteen years later, concluded that "except in Canadian subjects and in medieval studies, there are no collections in major fields that are outstanding as a whole." In spite of the definite impact of the Williams report on the recent development of university libraries, that of the Bonn report on science and that of the Simon report on medicine, the spokesman for the Canada Council said, when he appeared before the Senate Special Committee on Science Policy in 1968: "The major issue related to the adequate tooling of social and humanities research in Canada is undeniably that of the present state of our university library collections. This is the fundamental and most dramatic shortcoming of Canadian research institutions." This is still evidenced by the increasing volume of interlibrary lending, including the provision of photocopies, which is a matter of growing concern for many libraries.

The improvement and coordination of research collections is indeed one of the major problems facing Canadian libraries today. The other is the improvement and standardization of library systems. As you all know, these two problems are not unrelated—they will be discussed separately, however, for reasons of clarity—and they both receive the active attention of librarians as well as of governments at all levels. The recent development of regional library systems in most provinces and the two territories and the closer cooperation between university and college libraries on a provincial or regional basis through interinstitutional committees are steps in the right direction. Such cooperation on a provincial or regional basis is undoubtedly fruitful and should continue. There are a great many problems which can be solved at that level. All major surveys of library services to which I referred earlier, however, see many problems as having a national, as well as a provincial and local aspect, and they all identify a federal government responsibility.

This is true especially in respect to bibliographic control and to the optimum rationalization of research collections. As to the problem of bibliographic control, the need for action at the national level was never better expounded than in the position paper regarding the functions

of the Ontario Universities Bibliographic Centre which was approved not only by the chief librarians, but also by the deans of graduate studies and university presidents of the largest and richest of the Canadian provinces: "Many of the major library and information problems are national and international. Overall bibliographic control is a problem to be dealt with nationally and internationally. . . . The complex problems in the achievement of standards, systems development, the shortage of trained personnel, distance and the cost of equipment, all indicate that the creation of a machine-readable union catalogue should be at the national level rather than through duplicative regional efforts . . . a national service offers access to resources beyond those of a single province or limited group of libraries." At this time, when the concept of networks has such an impact on the development of library structures and services, and when there are so many indications that federal leadership is called for, the Canadian government acknowledges this responsibility more explicitly and more vigorously than ever before. This is evidenced not only by the expansion of existing information programs, but also by recent unequivocal policy decisions which will form the substance of most of my remarks from now on.

Three important developments of 1969 might be singled out for special mention here. They are the adoption of the new National Library Act, the formation of the new Department of Communications, and the Cabinet directive to the president of the National Research Council on the national Scientific and Technological Information (STI) network.

The National Library Act of 1969, while it provides for the continuation and development of all existing operations, allocates to the National Librarian the responsibility for the coordination of the library services of departments, branches, and agencies of the federal government including, "(a) the acquisition and cataloguing of books; (b) the supply of professional advice, supervision and personnel; and (c) the provision of modern information storage and retrieval services including photocopying and microfilming services, electronic and other data processing services and facsimile and other communication of information services." In other words, the coordination of all aspects of library services at the federal government level, the strongest library network in Canada, is now the statutory responsibility of the National Librarian. Those of you who have had occasion to be involved with the Federal Libraries Committee in Washington may be interested to know that I have recently set up its counterpart in the new Canadian Government Libraries Committee, which will advise me on all matters related to my responsibilities for library coordination and will be involved, as one of its first major concerns, with the results of a complete survey of government library operations now underway. Our aims are roughly the same as those of the Washington committee: elimination of unnecessary duplication, identification of services of such excellence as to warrant their being recognized as nodes in the national network,

centralization of processing, and the achievement of compatibility between systems. One basic difference, though, is the fact of statutory responsibility for coordination embodied in our new National Library Act.

Owing to the federal framework within which we operate, it obviously was not possible for the central government to provide for such coordinating powers on a nationwide basis; all that is possible here is voluntary cooperation between libraries subject to various levels of government as well as private libraries, and this is now facilitated by the new act. Section 8 provides that: "The National Librarian may, on terms and conditions approved by the Minister, enter into agreements with libraries and library and educational associations and institutions in and outside Canada in respect of library services. . . ." This was a prerequisite to the development of cooperative schemes as part of a decentralized national library system. I believe that a great deal more can and will be achieved by voluntary cooperation.

Another important decision of 1969 was the establishment of a Department of Communications whose functions extend to the planning, development, utilization, and coordination of communications systems and services, including telecommunications "not by law assigned to any other department, branch or agency of the Government of Canada." We welcome naturally the establishment of this new department, with which we have established close liaison, as we anticipate that as a result of its action, libraries, as well as other institutions, should eventually benefit from improved communications facilities which would expedite the transmission of information throughout the network at more acceptable costs.

Finally, there was the Cabinet decision of December 19, 1969, instructing the president of the National Research Council to develop "under the general direction of the National Librarian" a decentralized national scientific and technological information system encompassing the natural sciences and engineering. The government rejected, at least for the time being, the establishment of a new super-agency which had been suggested in the Tyas study on "Scientific and Technical Information in Canada"; it accepted the approach recommended by the Science Council, which endorsed the Katz report on "A Policy for Scientific and Technical Information Dissemination" and suggested a decentralized system made of components operating under a variety of ownerships and jurisdictions. The Katz report recommended also that the national system be designed so that it may be queried in either official language, English or French. Owing to the federal framework within which we operate in Canada, it was felt that this was the most realistic approach, and the OECD review mentioned earlier seems to agree with it. "Clearly, no organization, however powerful, can undertake all the tasks often quite efficiently performed by the many information and documentation facilities scattered across the country. An up-to-date information network built for the future must instead be based on the existing infrastructure, by co-ordinating activities, ar-

ticulating the various services, developing the strong points, helping and guiding private initiative in the right direction and bridging the gaps which remain." With a view to enlisting the participation of experts from all parts of Canada, the NRC was authorized to appoint an advisory board on STI whose members (except for the National Librarian who serves ex-officio) have been chosen for their wisdom as individuals and their knowledge about both the requirements of the users and the capabilities and limitations of performers in STI dissemination. Incidentally, the National Library Act, 1969, for the same reasons, provides for the appointment of a similar advisory board.

As you may see, there is no one body in Canada (nor in Britain or the United States) which has full authority for the development of a nationwide library policy which would govern all types of libraries. The principal coordinating agency is the National Library with special responsibilities assigned to NRC as far as STI is concerned, and both must count on the *voluntary* cooperation of institutions operating under other levels of jurisdiction in order to develop further the kind of information networks which would meet more adequately the needs of all types of users. Just as the NRC Advisory Board is looking at short-term and long-term requirements of STI users, I have taken a number of initiatives which, I hope, will bear fruit in the near future.

Before he retired three years ago, my predecessor, Dr. W. Kaye Lamb had established an Office of Library Resources to assemble and keep up-to-date information on research collections with a view to encouraging the coordination of collecting activities among the research libraries, as recommended by Dr. Williams and Dr. Robert Downs. The survey of collections of university libraries by this office is almost completed, and it is hoped that it will be published late this year or early next year. It will later be supplemented by extending the study to other categories of libraries; our objective here is to collect, organize, and disseminate up-to-date information on research collections and acquisitions policies in all subjects so that libraries, including the National Library, may be in a better position to plan acquisitions programs and, hopefully, develop cooperatively the best possible plan for the rationalization of acquisitions on a national basis. The Office of Library Resources has now been incorporated into the recently established Research and Planning Branch of the National Library of which it is now the Resources Survey Section.

Canada is still a country so poor in books that we cannot very well hope to make up for the time lost unless we agree to pool our resources, and it would appear that nothing short of a national plan could ensure the maximum benefits to be derived from the money we invest collectively in the acquisition and cataloging of research collections. I feel very strongly that it is not enough to survey collections, but that it is even more essential to involve the larger research libraries in a joint study of the problems involved. At my suggestion, the Association of Universities and Colleges of Canada (AUCC) has appointed a com-

mittee to study the problems involved in the rationalization of research collections on a national basis. More recently, the AUCC appointed a similar commission of enquiry to study the more fundamental problem of the rationalization of programs of postgraduate studies and research in Canadian universities; the two teams are now working in close liaison. There is very little to report in the way of concrete achievement in this respect. However, since the extent to which the coordination of library collections can be achieved depends so heavily on the degree to which parallel efforts to rationalize university programs are successful, it is a source of gratification to see that the two groups will tackle cooperatively problems which are so inextricably interwoven. The Resources Survey Section of the Research and Planning Branch was reinforced this year, and it will be further strengthened next year when it grows into a Resources Development Division so that it may be prepared to play whatever positive role may be assigned to the National Library in the coordination of research collections as a result of the present surveys and consultations. It is too early to attempt to say how this coordination will be achieved.

As indicated earlier, it is no less imperative to attempt to standardize systems than it is to rationalize collections. The development of computerized data banks of bibliographic information makes such efforts more urgent and necessary than ever before. Four months after I was appointed in 1968, I decided that we should proceed with a study in depth of the policies, programs, services, and methods of the National Library and determine the potential benefits of Electronic Data Processing (EDP) in the areas of acquisitions, accounting, cataloging, listing, indexing, circulation (including interlibrary lending), bibliography, reference, and communication. This study was not conducted in isolation; current trends in Canadian and foreign libraries were studied as were international developments. The final report, *Systems Development Project, National Library of Canada*, taking eighteen months to produce, is a thorough study (over 500 pages long) which will lead to the implementation of computerized systems not only for our own housekeeping operations, but also for the handling of such large national data bases as the national bibliography (both current and retrospective), the *Canadian Union Catalogue* and the union lists of periodicals and newspapers, as well as other bibliographic information generally. Naturally, Canadian librarians have been impatient to know what recommendations of the *Systems Development Project* would be implemented first. My associate, Mr. Lachlan MacRae gave a progress report on the National Library at the annual meeting of the Canadian Library Association held in Vancouver. He announced the automation program for the current year. The first part of the integrated information system will be the cataloging subsystem which includes the national bibliography, *Canadiana*. This subsystem will become operational in 1972; a generalized bibliographic record will be produced in machine-readable form which can be machine-processed to produce all

the requirements of the cataloging subsystem, including catalog cards for the National Library catalogs, selected subject bibliographies, control tapes for the publication of the national bibliography by photo-composition, and tapes for a Canadian MARC distribution service to Canadian and foreign libraries.

Simultaneously, starting also this year will be the system design, format development and programing, and conversion of entries for a computerized *Union List of Serials in the Humanities and the Social Sciences*. The balance of the money available for the automation program will be used to pay the expenses of (1) the task groups developing standards for use in automated systems; (2) a feasibility study of creating a computer configuration that could serve the needs of all federal government libraries and possibly such other agencies as the Public Archives and Information Canada;* (3) the development of an SDI service for the social sciences and the humanities based at first on the MARC tapes only, but including eventually other bases as they become available such as the *Canadiana* MARC tapes; (4) the preliminary study of the implications of such a large bibliographical data bank as the *Canadian Union Catalogue* and the exchange of MARC data between libraries, including on-line querying of large-scale bibliographic data bases; and (5) the preliminary study of telecommunications, including conversational links between computers, telefacsimile transmission, and network design. So much for the National Library automation program for fiscal 1971-1972. As you may see, the house-keeping operations of the National Library have been given lower priority (although we are currently improving our manual systems) than those tasks which are directly related to the development of a better integrated national information network.

Now, technological progress does not create networks automatically. We all know that library networks require common standards, as well as agreement on administrative and financial arrangements between participants. I need not tell you that this kind of agreement will not be easy to achieve and that the financial arrangements in a federal state such as Canada pose a complex problem. For that and other reasons, it was essential to invite the active participation of other libraries; one should always remember that members of networks should not be merely passive, they should all contribute something to the system, they should be active, and indeed reactive.

The existing boards and committees are useful in assisting us in refining and articulating policies and objectives, in determining priorities, and in establishing general guidelines for the implementation of short-, medium- and long-term programs. Such boards and committees do not, however, provide the concentrated and continuing efforts necessary to work out details of such programs nor to conduct the operational

* Information Canada is a new agency coordinating the federal government agencies which are responsible for dissemination of general information through the mass media; it is also the Canadian G.P.O.

research which is a prerequisite to their successful implementation; nor indeed can they ever be large enough to provide managers with the kind of advice that would take into account the point of view of all constituents.

For that reason, I decided to call a series of meetings with various categories of libraries in order to discuss with them their own priorities, what they expect further from national libraries, their relations to other categories of libraries, and how they see their role as parts of the regional or national networks. The first such meeting was held recently with the legislative libraries. Similar meetings will follow with law libraries, public and regional libraries, special libraries, and others. All these consultations will, I hope, give me a clearer and more complete idea of the main requirements of all categories of libraries so that we may be in a better position to decide on priorities for the expansion of existing services or the initiation of new programs. As you can see, no effort will be spared to obtain the best advice from every direction, including the views of library users as well as of the librarians themselves.

In order to develop programs which would better answer the growing needs as defined by such consultations, the active cooperation of the best experts available in the country must be sought and obtained. This can be achieved by the appointment of task groups. One of the most urgent needs is, of course, to develop cataloging standards acceptable to the Canadian library community. This is essential to the development of the kind of information networks which EDP makes possible and which requires a greater measure of standardization than manual procedures require. Last year I decided to call a national conference on cataloging standards which was, I believe, a great success. It was unanimously approved "that the National Library, in consultation with Canadian libraries and library organizations, establish priorities and initiate task forces to investigate such topics as: (1) The expected uses of a machine-readable national union catalogue or national bibliographic data bank including methods of cooperative contributions to such a bank and possible charges for use. (2) The relevance of the specifications of British MARC and of classed searching to the Canadian bilingual situation and the use of LC classification. (3) The exact content of a Canadian MARC format. (4) The standardization of classification tables for Canadian history and literature with updating at the National Library. . . ." There are four more topics spelled out as worthy of investigation, and the list could easily be expanded. This was an invitational conference, but it is gratifying to see that at a meeting which included representatives of university, government, public, and special libraries, as well as representatives of the main Canadian library associations, all accepted the leadership of the National Library.

I have now appointed two task groups, one on cataloging standards, the other on MARC. They are both expected to report before

the end of the year. Other task groups are planned on (1) the *Canadian Union Catalogue* to determine the level of service it should provide; (2) the cooperative indexing of the Canadian periodical literature; (3) the development of SDI services in the humanities and the social sciences; and (4) cataloging in publication. More task groups to deal with other important questions of nationwide significance related to library developments may well spring from those consultations referred to earlier, as well as from our cooperation with agencies developing international standards.

I realize that the task before us is not a small one; it is a real challenge and it cannot be met successfully unless we pool our resources with a view to deriving the maximum benefits from our joint endeavors. We must rationalize our research collections, we must develop compatible systems: these are objectives which require a very large measure of cooperation on a nationwide basis. They also require leadership and continuity of action.

In order to be able to provide continuing support to nationwide studies and cooperative projects, it was essential that the National Library have greater human and financial resources than were available before, and that there be recruited a team of people to spend the time doing the research and planning required to ensure that the services of the National Library be developed in harmony with developments elsewhere, both in Canada and abroad. It was equally important that nationwide efforts to develop a more efficient library network be supported by a team of experts who could provide the continuity without which these efforts could not be successful. This we are now equipped to do, thanks to the Research and Planning Branch of the National Library which was established last year, and will be strengthened this year, and again next year. It now consists of a Systems Development Division, a Resources Development Division, and a Documentation Centre on Library and Information Science. The Research and Planning Branch also coordinates these studies and plans with those of foreign and international networks under development, as bibliographic control is now an international problem leaving us with no choice but to act simultaneously at the national and international levels.

I hope to have said enough to give you a reasonably good idea of the kind of machinery we have devised in Canada in order to provide for the leadership, coordination, continuity, and participation required at this time for planning and implementation of national library programs commensurate with our needs and resources. Time alone will tell what measure of success will be achieved; but it is my hope that by involving as many experts as possible from all types of libraries and from related disciplines throughout Canada, we will gradually develop cooperatively the best library communication network which our human and financial resources make possible. I know, of course, that we will never have a perfect system. I know too that we are living in a period of constant and rapid change, and that we have no choice but to

reexamine policies and operations as we go to adapt them to changing conditions, meet new needs, and take advantage of new technology. There is still much to be done before we succeed in integrating most of our library activities into a coherent national system, and there will always be room for expansion and improvement. Much good work has already been done at regional and provincial levels, and the consensus is now that these cooperative developments should be integrated into a nationwide network.

May I say in closing that we are greatly indebted to U.S. libraries in more ways than I can indicate, and that we are anxious to increase our contacts with library leaders in your country in order to benefit as fully as possible from significant developments there. We realize that we will continue to benefit from large research collections assembled in the United States, advanced information services developed there and available to us, and from the high level of expertise achieved by so many of our American colleagues. We should, however, aim at building up our library resources and services to sufficient strength in most disciplines so that we may gradually stop taking what is perhaps an unfair advantage of the liberality of our American friends.

There is probably some virtue in being young, as well as in being small, or relatively small—we do not have to solve as yet many of the problems which result from mere bigness—and it is no doubt natural for a smaller nation to act internationally as we Canadians do. We can only gain. My hope is that we should also be able to give something in return.

The Developing National Library Network in Great Britain*

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I MUST BEGIN by saying that although I am currently doing a special piece of work for the British government's Department of Education and Science, the views I shall express do not necessarily represent official thinking. I must go further and say that although I can claim to be tolerably well-informed about developments in Great Britain I claim no special inside knowledge, and I shall certainly be revealing no secrets. However, I can put to you the issues as I see them, for the moment at any rate; things are happening so fast that many of the issues may cease to be issues at all in the next two or three years.

The term "network" implies a complex set of relationships, most readily expressed by diagrams with numerous small boxes and innumerable lines joining them, probably converging on a few larger boxes. As soon as one begins to draw one of these diagrams, to express what one believes to be an essentially simple situation, it becomes obvious that either one's diagrammatic skills are not what they ought to be, or the situation is not as simple as it ought to be. Once the diagram is on paper, it is tempting to regard it as a system to be operated, particularly as the computer opens up quite new opportunities of communication, rather than as a system to be simplified. I would therefore like to state my basic philosophy: to achieve any end, seek the simplest system possible, and operate it by the simplest methods possible.

From the viewpoint of national library planning, Great Britain has several features which distinguish it from the United States and Canada. In the first place, it is geographically very small. Second, it has within this relatively small space a very large number of libraries of varying ages, many of them with unique materials. Third, though I believe this is beginning to be true this side of the Atlantic as well, there has been little tradition of financial generosity to libraries: very few of our libraries exceed a million volumes, and the ability to acquire new

* Revised text of material presented at the Joint Program Meeting of IRR/ISAD/RTSD of the American Library Association at its Annual Conference in Dallas, June 21, 1971, under the chairmanship of C. Donald Cook, Council of Ontario Universities, Toronto, Ontario, Canada.

publications has in recent years fallen behind their rising cost and numbers. These three factors all tell heavily in favor of library cooperation; use of one library by readers registered with another, whether for consultation or loan, is often necessary and relatively easy. There is a fourth significant feature: most libraries in Great Britain are supported, directly or indirectly, by public funds; this makes it easier (in theory at least) to switch resources from individual libraries to the center, or indeed in the reverse direction, on the grounds that it is all public money that is being spent or saved.

Several events or trends in recent years combined to bring about a situation where the need of a general overhaul became apparent.

First, the British Museum Library (BML) had for several years outgrown its reading and storage space, and, as with any large system that has been in operation for a long time, a new look at its procedures was recognized to be due. The National Reference Library of Science and Invention (NRLSI), which is technically part of the British Museum, has been split most unsatisfactorily between two sites. Both the BML and NRLSI have been long overdue for new buildings.

Second, the pressures on the interlibrary lending system have been increasing very rapidly; in one of the best-documented areas, borrowing by university libraries, the average exponential growth per annum in the 1960s was 24 percent. The total growth was nowhere near as fast as this—probably about 16 percent per annum—but still fairly fast. The total volume of interlibrary lending is currently about 1,800,000 items a year. The importance of interlibrary lending can be seen from the example of my previous library, where volumes borrowed from other libraries each year are equivalent in number to 13 percent of the entire stock.

However, it was the first of these main factors, particularly the siting of the proposed new British Museum Library, that led to the establishment of the National Libraries Committee, under the chairmanship of Dr. F. S. Dainton. This committee, which reported in June 1969, took the first ever complete look at the national libraries and their place in the library system of the country. The report is of major significance, both for the facts it gathered and the solutions it proposed.

The next step taken by the government followed directly from one of the recommendations in the Dainton Report, namely that the place of automation in the future development of the national libraries should be studied. Such a study started in January 1970, under my leadership, and it is this that has occupied most of my time in the last eighteen months; my terms of reference are to study the feasibility of applying automatic (in your language, electronic) data processing to the operations and services of the national libraries. This report is due to be published in early summer 1972. Meanwhile an official paper was being prepared; this survived the change of government in June 1970, and emerged as a Command Paper called *The British Library*¹ in January 1971. This document sketches an outline structure for the British Library.

The component parts of it are to be the British Museum Library and the National Reference Library of Science and Invention (to be known as the Science Reference Library), to occupy separate parts of a joint site in Bloomsbury; the National Central Library (NCL) and the National Lending Library for Science and Technology (NLLST), to be married in a couple of years in the NLLST's home village in Yorkshire; and the British National Bibliography (BNB). Of these, the BML, NRLSI, and NLLST are at present directly or indirectly under government control (the first two have trustees); the NCL derives its funds mainly but not entirely from the government; and BNB is independent. It is recognized that the stock of these units cannot be comprehensive, and that there will have to be "close working relations" with other libraries, including the national libraries of Scotland and Wales. There will be a board to exercise overall control and administer funds; the closest parallel will be with one of our public corporations. The British Library cannot come into being until legislation has been formulated to bring the various component parts into the same framework; this will be a complicated procedure, and is unlikely to be completed in much less than two years. When it is completed, for the first time Great Britain will have an integrated national library structure comprising reference services, lending services, and bibliographic services.

Meanwhile, an Organising Committee, under the chairmanship of Lord Eccles (whose official title is Paymaster General, but whose function is to look after Arts and Libraries), has been set up, to take necessary steps toward the creation of the British Library; this committee, which has on it representatives of all the five units of the future British Library, as well as a number of other individuals (some of them librarians), has just had its first meeting. I would expect a number of important decisions to be reached by this committee, not merely because they are urgent, but because they will be the natural outcome of discussions with and between units which have hitherto worked separately but now have to work together.

The Command Paper offers the merest outline, deliberately, since it would have been unwise to attempt a detailed blueprint before the Organising Committee had been set up, or, indeed, before the data provided by my ADP Feasibility Study became available. However, some further light was shed by a debate in the House of Lords on 2 March 1971, when Lord Eccles spoke to the paper,² particularly on the responsibility of the British Library for nonbook materials, on the intention to "amalgamate into one dynamic whole" the five different institutions, and on the relationships it will be necessary to establish with other libraries.

The five units of the British Library in themselves constitute only part of the national library system, in the sense of the library system of the country. They do not even include the national libraries of Scotland and Wales, although the Command Paper states that a relationship with these will need to be established. In fact, there is no one body

in Great Britain with the task of developing or overseeing a national library policy, though much informal policy-making goes on in the Arts and Libraries Branch of the Department of Education and Science, and in the Library Advisory Councils. As I mentioned before, most money spent on libraries is public money, but it comes from different pockets and goes through different channels, and while it is open to, say, public, academic, and special libraries to cooperate if they wish, any attempt to impose cooperation on them directly from above would run into all kinds of difficulties.

However, it is impossible to develop a policy for the British Library without considering its relationship with other libraries. This is most obvious in interlibrary lending; you cannot get a policy for national lending provision without considering what level of provision individual libraries should aim at, or what part of the burden should be borne from national resources, whether by building up central loan collections or by constructing national union catalogs enabling libraries to draw upon one another's collections. Similarly, while the archival function of a national library can be assumed—a storehouse for the nation's book treasures, and a collection of the nation's publications—how far it should be developed to provide comprehensive reference coverage must depend partly on its relationship to other libraries.

At its simplest, a national library could consist of two units, a lending unit, and a reference unit, each of which would aim to ensure that it acquired a copy of every book represented in the country. With appropriate duplication, the lending unit could satisfy such a high percentage of demand that there would be no place for interlibrary cooperation nor for union catalogs. The reference unit would be the automatic resort of all scholars for all materials in all subjects; other libraries' collections could simply be ignored, except by their own members. If such a system were attainable, it would hardly constitute a network, unless innumerable satellites revolving around two very bright stars can be called networks.*

In fact, a system like this is probably nearer attainment in Great Britain than almost anywhere else, partly because of the relative smallness of most other libraries in the country, partly because of the way central collections have already developed, partly because, as I mentioned earlier, the compactness of the country, with good mail services and travel facilities, makes it unnecessary to have more than one such large collection, certainly for lending purposes, possibly for reference purposes as well. There are not many places in Great Britain from which you cannot get to London in less than four hours. This is true of much of the United States as well, but it costs much less in Great Britain.

Even in Great Britain we do not have, and shall never have, I

* At its very simplest, a national library would consist of only one unit, which would serve both reference and lending functions. I have not discussed this as a serious possibility, since the two functions are already firmly divided in Great Britain.

would venture to guess, such a totally centralized system; but it may be worth taking it as a point of departure, because its simplicity gives it so many advantages.

In science and technology, we are much nearer attaining this simplistic ideal than we are in the social sciences and, especially, in the humanities, though this would not have been true ten or fifteen years ago. However, the importance of scientific and technological information to the economy was recognized, and this recognition was followed by the establishment of the NLLST and by the comparatively generous provision of acquisition funds to the NRLSI. The importance of the social sciences and humanities to the country is much harder to demonstrate, although the needs of industry for social science journals proved sufficient for the NLLST to extend its coverage to them. This illustrates incidentally how deliberate acts of government policy can, even in a short time, transform the library situation of the country.

Admittedly, it would be much more difficult to build up collections in the humanities and some of the social sciences to a state where they would satisfy a similar level of demand, because of the much longer (indeed, indefinite) life of material in these subjects, and the much greater need for material in languages other than English. Even so, it is not beyond contemplation that an injection of adequate funds into the reference and lending units of the British Library would enable them to become, if not 90 percent services, at least 80 percent services.

The question is really not whether it should be accepted as a general principle that national provision of this kind should be made—the Command Paper indicates that such a principle is already accepted—but whether it is sensible for the British Library to make such provision on its own. Since there are a number of libraries with major resources in particular fields, many of them superior to those in the British Museum Library, and since these fields tend to be specialized, low-demand, areas, it seems wise and economical to reach some arrangement with these libraries whereby part of their resources at least form in effect part of the British Library's resources—what one might call “para-national” libraries. This would have the effect of building on strength, particularly as it is on these libraries that demand in these special fields is already concentrated. Libraries in this category include the British Library of Political and Economic Science, the Victoria and Albert Museum, the School of Oriental and African Studies (University of London), and the Royal Society of Medicine; these are all fairly clear-cut examples of “para-national” libraries. If some arrangement were made with them by the Board of the British Library, presumably this would take the form of a quid pro quo: British Library funds would be given to them, and in return they would be required to obtain, hold safely, and make available material in the particular fields agreed. This would constitute a very simple form of cooperative acquisition policy; again, not what one would really call a network.

These libraries do not of course exhaust the special collections in the

country. Many libraries, while not so specialized in their main area, have collections, large or small, which rival or surpass those held by the British Library; and a far larger number of libraries have odd items or pockets of material not in the British Museum Library. For the reference unit to take account of all these in its acquisition policy would be absurd and impossible; in any case, the mere problems of operating a cooperative acquisition policy involving hundreds of libraries, with subjects broken down into minute areas, would be tremendous. Rather, I would guess, would it be accepted that however much the British Library spent and however hard it tried, there would be over the country numerous collections and items it did not have and could not get; the problem then becomes merely one of recording them.

This leads inevitably to the question of union catalogs. Against our simplistic ideal of one all-embracing collection, which would make union catalogs unnecessary, one can put an opposing ideal, of a totally comprehensive union catalog, covering all holdings of all libraries. It is at this ideal that librarians in Great Britain have, explicitly or implicitly, been aiming for some decades; and much frustration has been expressed because it is nowhere near attainment. But at this point I must review briefly the present, pre-British Library, situation.

There is nothing in Great Britain approaching the *National Union Catalog* for monographs. The main catalog of titles held in the country is in fact the catalog of the British Museum Library itself, which holds, something between 70 and 80 percent of all titles in British libraries (some work being done for the ADP Feasibility Study will, we hope, enable a much more accurate estimate to be made). The *General Catalogue of Printed Books*, however, is not comprehensive even for the British Museum itself, since it excludes oriental books, certain categories of material which are not cataloged, and books acquired by the NRLSI; and it is not up to date. There are no other comparable printed catalogs of major collections.

The National Central Library's *Union Catalogue of Books*, which is held on cards, and contains over 2,000,000 entries, is far from comprehensive—several major libraries have never sent entries for their holdings, and current British books are excluded—and its entries are not consistently of a quality one would wish to see reproduced in print. All but one of the ten Regional Library Bureaux (to be precise, nine plus the Scottish Central Library) maintain union catalogs for libraries in their region, but these too are not comprehensive, nor of good consistent quality. None of these union catalogs is up to date, either for newly acquired items or for withdrawals; this is due partly to the failure of libraries to notify quickly (or at all), partly to the inability of the poorly staffed Bureaux to keep up with the notifications they do receive. One solution to this has been adopted by the largest of the regions, the London and South East Region, which receives and records entries for British books by ISBN number only. This experiment is of

considerable interest, as it could conceivably serve as a pattern for a national system for books that have ISBN numbers.

For periodicals, there is the *British Union Catalogue of Periodicals (BUCOP)*, kept up-to-date by quarterly supplements entitled *New Periodical Titles*. This is much more comprehensive than any of the monograph union catalogs, and since it is printed, libraries can use it directly without having to go through a Regional Bureau or the NCL. In addition to this, there are numerous local and regional union lists, more or less up-to-date; it is not easy to know whether these continue to exist, in spite of *BUCOP* and the NLLST, because there is a real need for them or because librarians like compiling union catalogs. Their strongest point is probably that they make same-day loans possible—readers in a hurry can often be directed to a library in the same town.

As for lending collections, the NLLST aims to buy, currently and retrospectively, all “worthwhile” periodicals in science, technology, and the social sciences, and all worthwhile English-language and Russian monographs in science and technology. The NCL’s collection is much more miscellaneous, having until recently been built up chiefly as a backstop—books requested but unobtainable through other libraries were bought for the NCL; in the last two or three years, it has deliberately set out to buy books published by American academic presses in the humanities and social sciences, since this has proved one of the areas where interlibrary loan failure was highest (the coverage now includes other U.S. publishers).

The normal procedure of most libraries wanting books they do not have in stock is roughly as follows. For a periodical in science, technology, or the social sciences application is made direct to the NLLST. For a periodical in the humanities application is made direct to another library, using *BUCOP*. For recent English-language and Russian monographs in science and technology, application is made direct to the NLLST; for all other monographs, application is made to the Regional Library Bureau (some libraries apply direct to the NCL).

The results of this system are that rather more than 50 percent of all loan requests are met direct from the stock of the NLLST (ca. 52 percent) or the NCL (ca. 2 percent); perhaps around 20–25 percent are met by direct application to other libraries,* using union catalogs or speculative inquiry (this latter being especially common among special libraries); and the remaining 20–25 percent are met indirectly via the Regional Library Bureaux, using their union catalogs, or via the NCL, using its union catalogs or speculative searches (lists of untraced items circulated regularly among a number of libraries). The first category of requests is usually satisfied very quickly—on average within two or three days. The second category takes longer to satisfy (perhaps about five days on average), since there are more first-shot failures, and since

* No figures exist for direct lending, so that this percentage is only a guess. The other percentages are reasonably accurate relative to one another.

individual libraries are often not well geared to interlibrary lending. The final category can take up to a month, though the average time is ten days.

Given a present situation which is far from ideal in many ways, and given for the first time a national library structure which is in a position, organizationally at least, to deal with it, where do we go from here? This is clearly the main question, or series of questions, to be answered by the Organising Committee and then by the Board of the British Library. All I can do here is to break down the question into sets of subquestions. My first set concerns interlibrary lending.

Should the lending system concentrate on building up the central collection in areas not at present covered (e.g., humanities periodicals, all worthwhile English-language monographs in humanities and social sciences), or on building up union catalogs? The answer must depend largely on the relative costs, and on how important speed is considered to be.

It is certain that no central lending collection can be comprehensive for all categories of material (e.g., foreign-language monographs in the humanities, or older English-language material). Should union catalogs be confined to these areas, or should they also cover areas within the province of the central lending collection, to serve as a backstop?

Assuming that union catalogs will continue to be needed, at any rate for some categories of material, need they, or should they, aim to cover all libraries, or only a limited number of libraries with particularly strong collections, especially in areas which the central lending collection does not cover? How many libraries would need to be included to cover, say, 90 percent of titles not in the central lending collection? And would an arrangement whereby only they were included in a union catalog—an arrangement which would inevitably result in their bearing the main burden of lending outside the central collection—be acceptable?

Partial answers to some of the factual questions will be provided by work being done for the ADP Feasibility Study, but difficult decisions will still have to be made.

As mentioned earlier, there is no national union catalog in Great Britain with acceptable bibliographical entries. Assuming that such a catalog is desirable, how should it be constructed? Should it be "grown" by the accumulation and merging, probably in machine-readable form, of catalogs as individual libraries convert them in MARC-compatible format and according to AACR rules? Or should it be based on the *British Museum Catalogue*, which does not follow AACR rules (and is very far from them in some respects), and is not at present in machine-readable form? If the latter course were followed, libraries would gradually add to the file, from their own catalogs, records for items not already represented. The libraries with most to contribute would be those with the strongest holdings in foreign-language material and in older English-language material—the very

categories which, as we saw, were likely to be most needed to supplement the central lending collection. A union catalog of bibliographical quality would thus tend to include the same libraries as would be needed for a union lending list.

At this point, apparently, our two hypothetical national catalogs come together, and it would be tempting to suggest that what is needed is a machine-readable catalog, based on the *British Museum Catalogue* and containing the holdings of certain categories of material in selected libraries. Unfortunately, we do not have a machine-readable *British Museum Catalogue*, and it would be very expensive to convert the present catalog (particularly if a large number of entries have to be changed to conform to AACR); while the *Union Catalogue of Books* at the NCL does not include the holdings of some of the most significant libraries, and its entries are not in an acceptable bibliographical style. Thus, a major operation would be required, starting almost if not quite from scratch; whereas an operation which built on existing records would be far more attractive in practical terms. Also, if one is starting from scratch with limited funds, might it not be better to concentrate on short entries, adequate for identifying and locating items, since such a catalog could be constructed more cheaply? A further problem with a combined bibliographical and finding catalog is that the libraries included would be expected to lend books which were uncommon or even unique; the attempt to include many more libraries, and thus to trace additional copies where possible of uncommon books, might therefore be considered justified.

Once a decision on a union catalog for lending has been made, should such a catalog be accessible only by reference (by mail or phone) to the central lending unit, or directly, whether by on-line access or by published copies, perhaps in computer-output microfilm?

A more fundamental question: bibliographical catalogs are nice things to have around, but who uses them, and what do they use them for? I suspect most users are bibliographers and librarians, and they use them to help in creating local bibliographical catalogs. And who uses local bibliographical catalogs, and for what reason? These questions cannot be ignored, especially when machine-readable files are under consideration. The problems of maintenance of very large files are by no means solved, and if file sizes can be reduced substantially, there is at least the certainty of reduced costs, of storage, handling, and output.

The preceding paragraphs are concerned with monographs. Serials present less of a problem, since a good union catalog already exists, central lending provision is far more adequate, bibliographical quality of entry is less significant (I am never quite sure why), and the total file size is far smaller. The question whether *all* libraries need to be included in it is however just as valid; it is so much easier to maintain accuracy if only a few libraries are involved.

One question I have not considered is interdependence between the

lending and reference units. How much duplication should there be between the two units? Although the British Museum Library and the NRLSI are strictly nonlending libraries, this would not preclude either their borrowing occasionally from the lending unit, or making photocopies or microfilms of items wanted on interlibrary loan. Under the new structure, questions like this will become real rather than hypothetical ones.

The future shape of the British Library, and of the national library system, is very important for individual libraries, since the acquisition policies of major research libraries may be affected by the knowledge that a book they might acquire has already been acquired by another library; up to now, such knowledge has not been available, and this *may* have resulted in some unnecessary duplication (though recent studies in the University of London colleges suggest that the degree of overlap may be rather small). Smaller libraries are affected because the efficiency and speed of the national lending system are crucial factors in deciding whether to buy or borrow a periodical title. Also, the degree to which the national lending system is subsidized is crucial, any attempt to make the central collection recover its total costs being liable to alter the whole library ecology of the country.

I turn now to what can be called "national bibliographic services"—the publication of catalog records, and the supply of records to individual libraries. In the *British National Bibliography*, Great Britain already has one of the best, fastest, and most comprehensive national bibliographies, despite complaints that it is not fast or comprehensive enough. The computer is already being used for its production, and there are close links with the U.S. MARC service. Whether, and in what directions, this bibliographic service should be extended are further questions facing the British Library, of which the British National Bibliography Limited will be a part. The possibilities of a computerized national bibliographic service include not only printed bibliographies such as *BNB*, but machine records which can be acquired by individual libraries, individual hard copy records, produced by machine, which can be acquired by individual libraries, selective bibliographies, subject catalogs covering major subject areas over several years, and so on. The processing centers which are developing in the United States for providing groups of libraries with catalog records are of much interest to us; in Great Britain, it has yet to be seen whether we need a number of such centers or whether one (obviously based on *BNB*) would be enough. Some experiments currently in progress will provide guidance on this question. More intriguing and problematical is the question whether a machine-readable *British Museum Catalogue*, or a national union catalog based on it, could or should be used as a bank from which individual libraries can draw machine-readable catalog entries for their holdings. The problems and economics of this have hardly been studied in any depth up to now; the possibilities are equalled only by the difficulties. Again,

the question of what sort of catalogs libraries really want is a crucial one. Standardization in descriptive cataloging is slowly gaining ground; too slowly, perhaps, but the decision to split the catalog, or to revise thousands of old entries, is a big one. That even a few libraries are considering it or taking it is encouraging.

Subject information for local consumption is one of the most difficult areas of all, because academic libraries in particular use several different classification schemes, or invent their own, and when they do use a standard scheme they are rarely content to leave it alone. Alphabetical subject catalogs are relatively uncommon in Great Britain, though indexes to classification schemes are. Yet it is here that perhaps the greatest savings to many libraries could be made; subject analysis can be more consuming of time and skilled labor than descriptive cataloging. While we are hoping that BNB may have achieved a breakthrough with its PRECIS system of subject indexing,³ this will not help libraries much unless and until they are willing to sacrifice local idiosyncracies for standardization, and so far there is little sign of this.

To this point, I have been considering the British Library only as it might concern conventional books. But, as we all know, books are less overwhelmingly the dominant form of recorded information than they were; nonbook materials in an increasing variety of forms are now upon us, and there seems to be no reason in principle why the British Library should not be as concerned with the collection and bibliographic control of these materials as it is with books. The British National Bibliography has already shown an active interest in nonbook materials,⁴ and Lord Eccles, in his speech on the Command Paper in the House of Lords,² said that he expected "the British Library to take under its wing the national archives of recorded sound, pictures and films." Since central collections of a kind exist for many nonbook materials—for example, the British Institute of Recorded Sound—it would seem most probable that arrangements will come to be made with these collections, perhaps on similar lines to the arrangements that may be made with what I called "para-national" collections of books. Without the likelihood of copyright deposit, bibliographic control is much harder to achieve; it can only be attained by the voluntary cooperation of the producing bodies, but there is reason to hope that this will be possible. The National Council for Educational Technology has produced at my request an excellent report on nonbook materials in connection with the ADP Feasibility Study; this has been published separately, and I expect it to be of wide interest.⁵

Indeed, I would expect a number of the studies done by my team, and for us on contract, to be of interest; we have, for example, had carried out for us a detailed study of options and costs for the conversion of the *British Museum Catalogue* to machine-readable form, a systems study of the British Museum Library, and reports on such special subjects as oriental books, music, official publications, old and rare books, and so on. I hope that our report will, as well as dealing

with the application of computers in areas where the costs and benefits seem to justify it, add significantly to the knowledge we have of the national library system in Great Britain, since we have had to collect a great deal of basic data, and inevitably consider in detail the underlying systems to which data processing could be applied.

There are in Britain some necessary bibliographic services which are not at present covered by the units which will constitute the British Library, but which are clearly national in character or coverage. Examples of these are indexes of theses and translations, and computer-based retrieval systems such as INSPEC. Here we are perhaps at something of a disadvantage compared with Canada, which has been able to plan such services as part of the National Library; however, it may not matter much exactly who provides these services, so long as they *are* provided (as they are), *and* are coordinated nationally. Perhaps, in addition to para-national libraries, we shall have para-national bibliographic services.

I would not wish to leave the impression that cooperation is a recent development in Great Britain. There are, and have been for a long time, regional and local schemes of various kinds, and with varying success to their credit. Some of these would be needed under any national system; others may find that the services they offer can be better provided nationally. But in any case, these schemes have served a splendid purpose, and have taught us a lot about planning and cooperation.

You may note that I have had little to say of the potential use in the library system of exciting new technological advances, apart from computers. This is because most of these technological advances are either "just round the corner"—an ever-receding corner—or here already, at costs which are not just round the corner, but right out of reach. I am not saying that there is not tremendous potential in, say, laser transmission; but in Great Britain we have to design for the immediate future, and that means using established technology at reasonable costs. The system must be practical *now*, not some time in a hypothetical future. Whether it turns out to be a network or not hardly matters, so long as it works. I am sure that some of the solutions which may be applicable to Great Britain are quite inappropriate to a much larger country such as the United States, where sheer geographical distance may make large centralized lending collections undesirable—it is possible that you need four or five national lending libraries rather than one. During my month's visit to the United States last year, while I learned a great deal about the operation of large library systems and the application of computers to them, I was struck again and again by the differences between the two countries—differences which are so fundamental that the solutions to national library problems cannot be the same. This does not mean that we cannot learn from each other, and, as I learned a lot from the United States, I hope the United States may be able to learn something from Great Britain. Certainly it is a very exciting time for British librarianship.

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The Cryptic Other

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Library Statistics of Colleges and Universities: Data for Individual Institutions, Fall 1967 identifies the classification system used by each reporting institution as "LC," "DC," or "Other." Since no other alternatives were allowed, the answer "Other" was forced to bear a wide variety of meanings. This study not only delineates eight meanings attached to this answer by the 174 college and university libraries which checked it but also provides added evidence concerning the extent of the "swing to LC" within academic libraries during the 1960s.

THE PAST DECADE has witnessed a widespread "swing" to the Library of Congress classification system within college and university libraries. Although academic librarians are quite aware of this trend, few can offer meaningful quantitative measures of its extent. The publication in 1969 of Bronson Price's *Library Statistics of Colleges and Universities: Data for Individual Institutions, Fall 1967* (hereafter, *LSCU 67*) offered an important contribution to the filling of this lacuna.¹ Yet the interpretation of this publication's information on the classification systems used by reporting colleges and universities is more problematic than it appears at first glance.

The librarians who provided the data for *LSCU 67* were asked to identify the classification system used in their libraries as "DC," "LC," or "Other."² Only these three alternatives were allowed. Table 1, which summarizes the 2,167 responses to this question, indicates that 508 colleges and universities—nearly a quarter of the responding institutions—reported using LC in 1967.³ Yet the number of institutions using LC in 1967 actually approached or exceeded 600; the basis of this claim is the surprising discovery that many users of LC listed their classification system in *LSCU 67* as "Other" rather than "LC."

What did the term "Other" mean to the 174 respondents who checked it? As would be expected, many checked this answer to indicate that their libraries were utilizing a classification system "other than" LC or DC, a system, for example, such as Cutter's Expansive Classification. Yet many others checked this answer because they felt that the alternative answers—"DC" and "LC"—provided inadequate descriptions of their situations. Included among this latter group were

TABLE 1
 CLASSIFICATION SYSTEMS USED
 BY THE COLLEGE AND UNIVERSITY LIBRARIES
 LISTED IN *LSCU 67*

Classification System Used	Number of Institutions	Percent
LC	508	23.4
DC	1,480	68.4
Other	174	8.0
No Response	5	0.2
Totals	<u>2,167</u>	<u>100.0</u>

many whose libraries were utilizing *both* LC and DC in 1967. The response "Other" thus carried widely differing meanings to the 174 respondents who checked it.

In an attempt to shed light on this cryptic term, questionnaires were sent to each of these 174 libraries. Responses from 149, an excellent 85.6 percent, indicated that this term carried eight distinct meanings.

1. Thirty-nine of these 149 responses came from libraries which possessed substantial LC and DC sections in their collections in 1967 but were then classing all or virtually all new acquisitions in LC. The only new acquisitions being placed in DC by such libraries were occasional additions to lengthy sets which had not yet been reclassified. Having suffered through the throes of conversion for several years, these institutions naturally look forward to the day when their entire collections will be in LC. Indeed, seven had already attained this goal by 1970. Most of these thirty-nine libraries had joined "the swing to LC" during the past decade.

2. Eleven responses came from libraries classing the bulk of their new acquisitions in LC but retaining DC for the classification of new materials in one or more specific areas. While three of these libraries retain DC for literature, the other eight restrict it to juvenile titles, curriculum laboratory materials, and/or other small special collections. Although the libraries in this second category have converted—or plan to convert—most of their subject areas to LC, they see advantages in permanently leaving certain subject areas or special collections in DC.

3. Four institutions which class new acquisitions in both LC and DC place a much greater proportion of these materials in DC than do the libraries in the second category. Three of these institutions are multiple-campus institutions which use DC on at least one campus and LC on the other(s), while the fourth is a small college which routinely classes new materials in all but one subject area in DC.

Categories 1-3 cover fifty-four responses, all coming from colleges and universities which utilized both LC and DC in 1967. These fifty-

four responses represent a sizable 36 percent of the questionnaire responses, suggesting that more than a third of the librarians who listed their classification scheme as "Other" in *LSCU 67* chose this answer to indicate that their libraries were using both LC and DC. The vast majority of these fifty-four libraries are either reclassifying or desirous of reclassifying. (Perhaps other libraries which were reclassifying in 1967 and thus were also using both LC and DC then chose to list their classification scheme in *LSCU 67* as "LC" rather than "Other.")

4. Six respondents indicated that their libraries or library systems made use of not only LC and DC but also one or more additional classification schemes covering such specialized areas as law, medicine, or music. Due to the diverse nature of these six institutions, which range from multicampus universities to small conservatories, no summary comments are possible.

Note that all sixty responses in categories 1-4, roughly two-fifths of the 149 responses, came from libraries that were making use of both LC and DC in 1967.

5. Eighteen responses came from libraries using LC plus a second classification scheme but not DC. Three of these libraries place all new acquisitions in LC but still possess numerous older volumes classed in a second system. The other fifteen—predominately medical or theological libraries—employ two systems for new acquisitions, with general books being classed in LC and specialized professional materials being placed in the second system. The second system most commonly named was NLM, the classification scheme devised by the National Library of Medicine.

6. Eleven libraries reported that in 1967 they were using DC plus a second classification scheme but not LC. Ten of the eleven were then dividing new acquisitions between the two systems, with most classing general materials in DC while placing selected subjects or special collections in the second system. At five of these libraries this second system was one devised locally; at the other six it was a published system such as Harvard Business or Lynn-Peterson. It is interesting to note that four of these eleven libraries have switched to LC since 1967.

Categories 5 and 6 cover twenty-nine responses (19 percent) of the returned questionnaires, indicating that a fifth of the libraries listing their classification systems as "Other" in *LSCU 67* were using LC or DC plus a second classification scheme.

7. Forty-four responses came from libraries which used a specialized classification scheme but neither LC nor DC in 1967. Thirty-one of these forty-four were employing a well-known specialized system, including nineteen using the Union Theological Seminary system, five using the Boston Medical system, two using Cutter, two using the Freidus Classification for Judaica and Hebraica, and three using other systems. The remaining thirteen libraries had met the challenge of unique situations by devising their own classification schemes, including six schemes for the fine arts, three for specific technologies, two for

theology, and two for law. (Additional specialized or unique classification systems are undoubtedly in use, especially at various institutions not listed in *LSCU 67*.)

The librarians at these forty-four institutions are divided concerning the merit of their classification systems. While some laud the specialized schemes they are using, others express definite reservations. Indeed, the twin pressures of economics and standardization have already persuaded thirteen to switch to either LC or NLM.

8. Finally, sixteen responses came from libraries which claimed their classification systems had been erroneously listed in *LSCU 67* as "Other." Seven of these libraries have always used LC exclusively, while the remaining nine have always employed only DC.

What trends has our study uncovered?

The inception of this study lay in the discovery that many of the 174 librarians who listed their classification systems as "Other" in *LSCU 67* were actually making extensive use of LC. Based upon information supplied by questionnaires, the preceding paragraphs have outlined eight basic classification patterns which prevailed at 149 of these libraries in 1967. Table 2 reviews our findings. Note that nearly half of these libraries, those appearing in categories 1-3 and 8, were using only LC and/or DC. An additional quarter, those in categories 4-6, were making a greater or lesser use of LC and/or DC. Only the forty-four libraries found in category 7 were totally avoiding both LC and DC.

TABLE 2
DISTRIBUTION OF QUESTIONNAIRE RESPONSES
AMONG THE EIGHT CATEGORIES

Category	Identification	Number	Percent
1-3	LC and DC	54	36
4	LC, DC, and another system	6	4
5	LC and another system	18	12
6	DC and another system	11	7
7	Another system	44	30
8	Erroneous listings	16	11
	Totals	149	100

How many college and university libraries were using LC by 1967? As Table 1 suggests, 508 institutions listed their classification scheme as "LC" in *LSCU 67*. Our study has uncovered an additional eighty-five colleges and universities which were making use of LC in 1967, including the seventy-eight libraries in categories 1-5 and seven in category 8. The number of libraries using LC in 1967 thus totaled at least 593. In view of the fact that some institutions failed to respond to our inquiry while others were not even listed in *LSCU 67*, it is reasonable to conclude that more than 600 colleges and universities had "gone LC" by 1967.

Two closing caveats should be noted. No attempt was made to determine the accuracy of the *LSCU 67* data concerning the 508 colleges and universities that reported using LC or the 1,480 using DC. No attempt was made, for example, to ascertain whether or not a given university that reported using LC was actually using both LC and NLM. Moreover, no inquiry concerning the use or nonuse of the Superintendent of Documents classification system was made. This study focused instead upon a single objective, the interpretation of 174 uses of the cryptic term "Other."

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Headings, Subject.

See SUBJECT HEADINGS

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To the confusion of library patrons and staffs, subject headings in indexes, lists, bibliographies, cross-references, and on catalog cards appear in a variety of formats: in capital letters, in underlined lowercase, in lowercase red, in italics, and in both upper- and lowercase. The writer proposes an easy solution to the problem: print subject headings in capital letters and other entries in lowercase.

THE PURPOSE of this article is to promote the use of capital letters wherever and whenever a *SUBJECT HEADING* appears—on a catalog card, in a tracing, a periodical index, a subject bibliography, or a subject list. Likewise, it is urged that nonsubject heading “see” references and all nonsubject entries be shown only in lowercase.

There are a number of reasons why this format should be completely accepted. All commercially printed catalog cards use capital letters in subject headings as do many manuals of cataloging procedures and handbooks of library use. This practice is appreciated especially by many of us males who suffer from some degree of color blindness. To us, most shades of red appear as black so we confuse subjects with other entries when using catalogs where subject headings are typed in lowercase red; uppercase red poses no problem. Probably this was a factor in a recent study which found that 23 percent of college library users could not distinguish between subject and nonsubject entries.¹ Also, many students confused “see” and “see also” references. Though it was not brought out in the study, it is typical that information typed on the cross-reference cards was typed in lower case.

Further, those who check catalog filing in libraries using red lowercase type find instances where typists have mistakenly typed subject headings in black. Entries for biographees can be counted on to carry this error. The arabic “1” and the roman “I” are too alike, typists say. They point out that most of these errors could be avoided if capital letters were used for subject headings in tracings. Some printed cards have shown tracings in capitals some years ago (Random House and

CCC), but have reverted lately.* All card producers, including the Library of Congress, should adopt this logical and helpful format, for even those who will continue to use red lowercase will be reminded more vividly of what is and what is not a subject heading. Also, those who sell machine-produced cards will save a step or two in programing when the tracings for subject headings are presented in capitals.

Subject headings in lists and indexes should also be printed in capital letters. Library students learning the fundamentals of cross-indexing become confused with the difference between boldface and regular type especially when inking is too heavy or too light as it is on some pages of printed lists. Card sets made by students in drill work constantly have subject headings in lowercase (an error) because of the carryover from seeing them in this manner in lists of subject headings.

The easy solution to these problems was introduced to library students over fifteen years ago by Elizabeth Vogenthaler, a supervisor in the Division of Libraries, Chicago Public Schools, and then a part-time instructor at Chicago Teachers College. Unfortunately, the practice has not entirely caught on. Many of her ideas including the straightforward and logical presentation of subject heading notation have been incorporated in a school library manual and in a set of cross-reference cards.^{2, 3}

Consider what the library user faces. Printed catalog cards show subject headings in capitals but print tracings in lowercase. While H. W. Wilson uses capitals in its many periodical indexes, the first word of *each* entry, both subject and author, is sometimes capitalized. However, only lowercase is used for subjects in Wilson's *Essay and General Literature Index*, *Cumulative Book Index*, *Book Review Digest*, and the *Standard Catalogs*. In Wilson's *Sears List of Subject Headings* (and in LC's *Subject Headings*) lowercase type is used with the "see" references in regular face and the subject headings in boldface type. It is predictable that these lists and indexes will be more efficient tools when headings are in capitals consistent with catalog cards.

Entries in the R. R. Bowker publications *Library Journal*, *Publishers' Weekly*, and *American Book Publishing Record* also use capital letters, but only for the first word in author entries. In libraries photographing entries from these publications for transfer to catalog cards there is probably some resulting user confusion.

In LC's *Subject Headings for Children's Literature* capitals are used for subject headings, but lowercase only is used for subdivisions.⁴ Happily, in the *Subject Index to Children's Magazines*, entire subject headings are in capital letters just as they are in Bowker's *Subject Guide to Books in Print*. Each differs, however, in its practice with

* Random House, Follett, and a few other publishers printed and sold catalog cards for titles purchased mainly by libraries. Now, jobbers like Bro-dart, Alesco, and Baker & Taylor prepare and sell catalog card kits. Catalog Card Corporation of America (CCC), the Library of Congress, and H. W. Wilson sell catalog cards as separate items.

"see" references. In the first of these lowercase is used; e.g., Courtesy See Etiquette. In the next two the "see" reference is in capitals with the subject heading referred to in lowercase—e.g., HOLLAND See Netherlands—just the opposite of what is advocated here. There are other indexes which use some or all capitals for subject headings, but differ in the manner in which "see" and "see also" references are shown. Some offer no cross-indexing at all: *Nursing Literature Index* and *Current Index to Journals in Education*, for example.

All these different formats to show the same things cause confusion and frustration contrary to the intent of those responsible. The reader probably knows of other places where the use of italics, color, underlining, and boldface type could be eliminated and revised to conform with the proposal advocated here. Correction is simple and inexpensive; the rewards large. All of us, library patrons, staffs, and publishers will benefit through consistent use of capital letters for subject headings and lowercase letters for nonsubject headings and references.

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It Will Cost More Tomorrow

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This article pertains to one rather small but important sector related to the library activities of an emerging university, Arkansas State University. The topic for consideration is the reclassification of some 46,970 volumes from the Dewey Decimal Classification to the Library of Congress scheme, in a library whose general collection numbered 90,000 volumes at the beginning of the project. This paper presents one approach to this task, describes the personnel, equipment, quarters, and procedures employed, and states cost estimates relative to the work done. The aim of the paper is to encourage librarians who are now in a situation comparable to that at Arkansas State, in 1966, to begin such a conversion. We wish to impress our readers with the presentation of an observably simple, economically feasible scheme for carrying on a reclassification project.

THE SITUATION LEADING TO OUR INSTALLATION of a reclassification project in August 1966 was: A cataloging backlog of some 15,000 volumes; the pressing need of a faster, more economical means of cataloging books; the advantages of employing LC proof sheets in local card reproduction; and, the strong conviction that the decade of the seventies will witness a marked increase in the acceptance of LC classification for use in academic libraries. And, quite aside from the purposes of this paper, the writers hold the opinion that LC classification should be universally used among public school libraries; one advantage of such acceptance would be the facilitation of regional processing of library materials for these schools, and another the ease of transition for the college-bound student from his public school library to those of his college or university.

With the employment of a new head librarian at Arkansas State University, one of his first decisions was to begin the immediate use of the LC classification for current cataloging, and another to set up a program of conversion from the Dewey Decimal Classification to LC, which we labeled the Reclassification Project. Needless to say, strong support from the university administration was given the head librarian and his staff. Once the die was cast, the library administrators turned their attention to the implementation of a program for the accomplishment of such a goal. Systems analysis and design were of

first importance. A search of library literature revealed no detailed articles which appeared to meet our needs. The planners, therefore, took what was considered to be a commonsense approach, and this, then, is the gist of our paper.

To facilitate our current cataloging, through the use of LC proof sheets, LC printed cards, and the *National Union Catalog*, the library equipped itself with a subscription to the proof sheets (subscription to begin in 1967, for which a three-year file is maintained); a Xerox 914 copier adjusted to accept card stock for multiple card reproduction; a Polaroid CU-5 camera system for photo reproduction of unit cards from the *National Union Catalog*; a Se-Lin device for producing spine labels; a high-speed pasting machine for putting in book pockets which could be used later with standard IBM cards; and, electric typewriters for library clerks assigned to the Catalog Department. The Xerox copier was to be used for card set reproduction in reclassification as well as for current cataloging routines. It may be noted here that at the end of a two-year period no cataloging arrearage remained of the 15,000-volume backlog, and during this period some 45,000 items were added to the collection—all classed in LC, and some 27,000 items were reclassified from the general collection, one-third being done as a part of the regular cataloging outside of the Reclassification Project. The later figures will become meaningful as the personnel for the reclassification project are delineated.

A certain amount of reclassification was done by the professional catalogers during their routine cataloging in LC. Upon the arrival of an added copy or a new volume in a serial set, the catalogers would not only classify the new copy or volume in LC, but would have the older copies or earlier volumes pulled and reclassified to LC. In addition, there were two collections which were reclassified solely by the professional cataloging staff. They were the Reference Collection and the Library Science Collection. During the first two years, approximately 35 percent of the total reclassification was done by the professional cataloging staff. Over the total Reclassification Project, approximately 23 percent of the total reclassification was done by professional catalogers. We insert these figures as additional information, not as a part of the Reclassification Project. It is an indication, however, of the type and amount of reclassification that might not be done by those hired for a reclassification project. The number of volumes reclassified by the professional cataloging staff is not included in the "volumes reclassified" column in Exhibit II. The amounts and percentages in Exhibit II are those associated with the Reclassification Project only.

It is obvious that certain policy decisions, whether directly connected with the Reclassification Project or not, were made, and we feel that it will profit the reader for them to be identified at this time. The first, of course, was the decision to initiate the use of Library of Congress classification in the Library's cataloging procedures and to reclassify the items already in the collections which had been done in

the DDC. A second decision was made concerning the staffing of the project: that nonprofessionals could do the routine tasks involved, with a minimum of professional supervision. Other major decisions included the willingness to accept LC call numbers as they appeared on the LC unit cards, although exceptions were encountered along the way; to pull only the main entry and the shelflist card for each title to be reclassified, leaving the rest of the card set in the public catalog during the time the item was being reclassified (in cases where it was possible, and this was the majority, new card sets for each title were reproduced using the main entry card from the public catalog); and to make available the use of a Xerox model 914 copier for reproducing card sets for the project. Policy, in terms of reclassification, was that cataloging and classification would be in the mode of Library of Congress practice, and that the use of "see" references and the form and content of holding cards would be determined by the head cataloger, the assistant director for processing, and the head librarian.

The economic feasibility of the project received initial attention. The items considered were budget, quarters, staff, and additional equipment and furnishings. Office space of 650 square feet, 25 x 26 feet, was available on the second floor of the library. This office was close to the general collection housed on this floor and to the elevator. Further, the elevator has one door opening directly to the cataloging area and shelflist on the first floor. Funds available for staffing enabled us to employ three student library assistants for the project at a rate of \$1.25 per hour, each working a total of fifteen hours a week, for a total cost of \$56.25 per week. Supervision of the project was under the direction of the head librarian. Thus, our total work force consisted of three part-time student workers who were instructed, advised, and "programmed" by one busy administrator. The manner of supervision was by exception, and the time spent by the head librarian was chiefly in terms of problem-solving. Work routines, in the initial stages, were established by the head librarian with the sufferance of his cataloging experts! One library assistant (semiprofessional cataloger) was assigned to care for original cataloging of materials being reclassified where no LC cards or NUC entries were available.

The equipment installed in the office included one electric typewriter with a library keyboard, one electric iron for setting spine labels, two book trucks, and two electric erasers. Furnishings consisted of one secretarial desk with posture chair, two small tables, one for filing and the other for a manual typewriter (to be used as the need arose), one large work table, one vertical file cabinet for storage purposes, and additional chairs—one a swivel chair with casters. Later, a Se-Lin labeling device was added to the equipment in the office, and a single section of double-faced steel shelving. This, then, was the home of the Reclassification Project. Equipment that had to be purchased for the project included the electric typewriter, a manual typewriter for the Se-Lin device, two book trucks, and the posture chair.

Initial conversations related to the procedures to be employed in the Reclassification Project were initiated and controlled by the head librarian. These procedures were subject to change when the head cataloger (who was at that time faced with a huge arrearage of uncataloged materials) was given supervision of the project, and a full-time staff and more student library assistants were added. Inasmuch as a Xerox model 914 copier was rented for local catalog card production and intended for use with reclassification as well, card sets for materials being reclassified were made employing this equipment. Further, with a Se-Lin device in our Mechanical Processing Department, labels were typed on this equipment for reclassified materials, and their pasting machine was used to set in book pockets—a book truck load at a time.

Our first task, in terms of procedures, was to determine a point of departure among the thousands of volumes spanning the complete range of Dewey numbers. It was decided to begin with the 600s. Our reasons were these: The 600s represented a relatively small segment of the total collection, a probability of ready acceptance of assigned LC call numbers and cataloging found on the unit card, and fewer cataloging problems which would require the attention of a cataloger. It was our judgment that the call numbers in the 600s would be less complex and confusing to a novice than those in most of the other Dewey classes. A further decision was made to do the 000s, 800s, and 900s toward the completion of the project for reasons which will be indicated later.

The initial procedures to be used by workers in the Reclassification Project were these: Books would be pulled from the shelves a truck load at a time and taken to the shelflist where the shelflist card for each title would be pulled. The book truck and cards would be arranged by main entry, and one student assistant would then proceed to the public catalog and pull the main entry for each title represented among the shelflist cards. The use of the main entry and shelflist cards in the reclassification scheme was considered one of the major policy decisions related to the project. In the event that the main entry card was usable for the purpose of card set production through duplication on the Xerox 914 copier, the Dewey call number was erased, and the LC call number at the bottom of the main entry card was typed in its place—if the card description fitted the title page of the book on the truck and its physical characteristics. Due to the fact that each item had already been cataloged by trained professionals, our concern was that the item in hand matched the main entry card which had been pulled for it; it was our policy to regard local cataloging as acceptable, in the same manner that we accepted LC classification. The order of typing the LC call number was as follows: The main letter classes on the first line; the numbers assigned from the LC schedule by LC classifiers on the second line, including a decimal value if one was assigned; the author mark and cutter number (s) on the

third line. A fourth line was used, if needed, for author identification, title, translator, editor, etc., as indicated in the call number, and fourth or fifth line for edition (year) or volume number. Examples of our placement of elements of the LC call number are illustrated below.

QA	LB	HB	PS	line #1
251	2823.5	3525	3503	line #2
.H28	.A83	.H3	.I79	line #3
1968		S3	U5	line #4
			1922	line #5

The period preceding the author mark was the first symbol placed in the third line of the call number. It should be noted that the LC call number followed this exact sequence in typing spine labels. With the LC call number typed on the main entry card, a card set was reproduced on the Xerox 914 copier, proper headings typed on the added entry cards, and the shelflist information (accession number, cost) was added to a new shelflist card. A book pocket was typed from the shelflist information: LC call number in relative placement and sequence, as typed on the unit card, author, title, and accession number; and then the book pocket was taken to Mechanical Processing where a spine label was made. Book pockets were then pasted in the books by the truck load, labels applied and heat iron sealed to the spine of the books, and the LC call number penciled in the upper left-hand corner of the page following the title page in the place where the Dewey call number had been erased. This then was routine processing for the Reclassification Project. Exceptions were flagged on the shelf card using vise guide signals. The exceptions flagged included such items as those which required a holdings card following main entry in the public catalog, the need of a decision for a series entry, or the need of a new unit card. Other exceptions were forwarded to a cataloger for reclassification.

Throughout the Reclassification Project minor changes were added to the procedures as the need and advantages became apparent. The final procedure, and the one that was used during most of the project, is shown in flow chart form in Exhibit I (see p. 88-89). The flow chart shows the routines and subroutines in great detail. Of particular importance is the fact that throughout the entire process the expertise of a professional librarian is called upon only twice. The first occasion when a professional is called upon is an exception which only occurs when the main entry card does not have an acceptable LC call number. Our experience was that when no LC card had been used in the first cataloging of an item, no LC call number appeared on the main entry card; therefore, such entries were treated as though the item did not have an acceptable LC call number. The second occasion that a professional librarian was called upon is part of the regular routine, and is the only

time that the work of the Reclassification Project is checked by a professional librarian. These two actions by professional librarians are shown in black capitals on the flow chart.

As mentioned above, the reclassification process begins when the books to be reclassified are pulled from the shelves. If there appeared to be books missing from that particular area, the shelflist cards for those books were pulled and sent to Circulation where the subroutine of placing holds on the books in circulation or searching for books not in circulation was performed. After the book was either found or withdrawn from the collection, the subroutine for that particular volume ended; if the book was found, it returned to the regular routine of processing.

The next important phase of the reclassification process was the check to determine whether or not the old catalog cards contained an acceptable call number. Near the beginning of the Reclassification Project, it was decided that this decision could be made by the clerical worker in charge of the project. This decision process was carefully explained, and the unacceptable LC call numbers were listed as part of the reclassification routine. These numbers included the PZ numbers for fiction and the Z5000+ numbers for subject bibliographies. In any instance when the old catalog cards contained an unacceptable LC call number or no LC call number, the book, main entry card, and the shelflist card were sent to a professional cataloger for a call number assignment. In the case of a typed main entry card, the clerk or a student assistant would search the *National Union Catalogs* for an LC entry for that title. If one were found, either a Polaroid picture was taken of the entry or the call number was typed on the main entry card in hand. The latter action depended upon the quality of the cataloging on the typed card. In either event, a main entry card for the title was returned to the reclassification routine. The initial decision to allow clerical personnel to decide on the acceptability of LC call numbers was never reversed and was a basic factor in holding down the cost of professional staff during the entire operation. Due to the relative recency of the majority of items in our General Collection, we did not worry about obsolete LC call numbers.

One point should be added about this process. During the reclassification of the 800s, the professional cataloger assigning call numbers for reclassification worked directly from the shelflist. That is, call numbers for fiction books were assigned using the old Dewey shelflist, the LC shelflist, and the LC classification schedules. This was done in advance, so books being pulled for reclassification had a shelflist card with an acceptable LC call number written on it.

Once the LC call number was typed on the main entry card (to have a later use as the shelflist card to the new set), a book pocket made, and the LC call number written in the book, the book and the cards were separated and remained so throughout the duration of the reclassification process. The main entry card was sent to the profes-

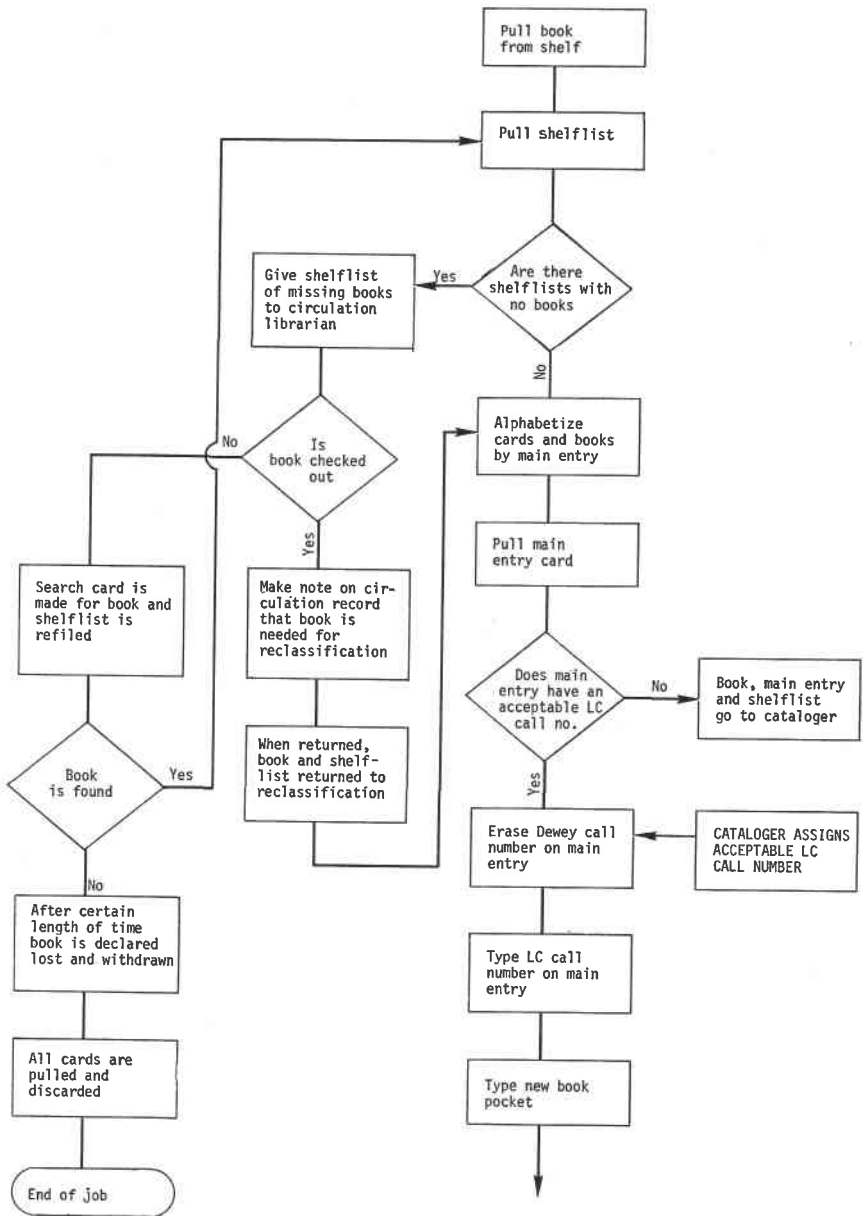


Exhibit I (continued on p. 89)

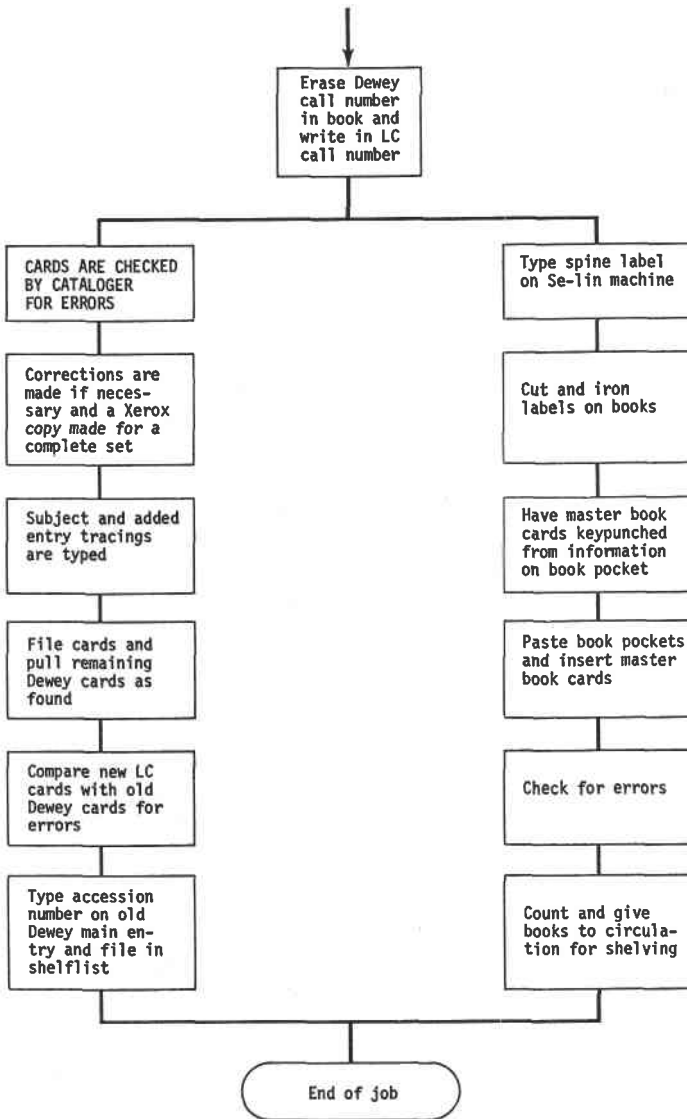


Exhibit I (continued)

sional cataloger in charge of reclassification to be checked for errors. After necessary corrections were supplied, Xerox copies of the main entry card were made, and the resulting sets of cards were completed by typing subject and other added entries. The cards were then ready to be alphabetized and filed in the card catalog. As new card sets for reclassified materials were filed into the card catalog, the old Dewey cards were pulled and discarded. By filing the new cards for reclassified materials in the same location as the old Dewey cards, the filers could drop cards below the rod, thereby doing away with the need for revision by professional catalogers.

During or after the preceding process, the accession numbers on the old Dewey shelflist cards were typed on the new LC shelflist cards, and these were filed into the shelflist catalog. It should be noted that the old shelflist cards were kept in a file (arranged alphabetically by main entry) until the accession numbers were typed on the new LC shelflist cards. The old Dewey shelflist cards did not travel with their respective main entry cards. This was the final procedure concerned with the processing of the catalog cards.

After the books were separated from the cards, their processing was simply mechanical. Spine numbers were typed and ironed, master book cards for our automated lending system were keypunched from information on book pockets, book pockets were pasted in the book, and the master book cards were inserted. The final step was a checking operation where call numbers and accession numbers on a particular book were checked for internal agreement. The call number on the spine, book pocket, and master book card must equal the official call number written in the upper left-hand corner of the page following the title page. After this, the books were counted for inclusion in reclassification statistics and sent to the Circulation Department for shelving.

In computing the total cost of the Reclassification Project, it was thought that anyone interested would like a more detailed breakdown of costs than is normally given in reports of this type. Exhibit II shows the breakdown of costs associated with the Reclassification Project at Arkansas State University. The costs of professional staff were figured on the basis of the percentage of time spent on working with reclassification problems and checking the work of the clerks and students employed in the project. The first period, October 1966 to June 1967, was a time during which the head librarian checked the work of the reclassifiers. He estimated his time spent on this job to be worth about \$400. In July of 1969 a library assistant was replaced with a professional cataloger who on the average spent one-half of her time working with reclassification. This replacement is evident in the large increase in professional staff cost for that year.

The first full-time clerk was hired for the Reclassification Project in July 1967. Throughout the life of the project there was no need to employ more than one clerk to oversee the work and supervise the

EXHIBIT II
RECLASSIFICATION COST ESTIMATES: YESTERDAY AND TODAY

Period Covered	Professional Librarian	Library Clerk	Student Workers	Xerox, Cards, Book Pockets, Spine Labels	Total Cost	Volumes Reclassified	Cost Per Volume
Oct. 1966-June 1967	\$ 400		\$ 1,852.50	\$ 266.33	\$ 2,518.83	3,288	\$0.76606
July 1967-June 1968	2,520	\$2,400	1,939.30	815.27	7,674.57	10,065	0.76250
July 1968-June 1969	2,700	2,630	4,324.30	1,142.02	10,796.32	14,099	0.76575
July 1969-June 1970	4,100	3,072	7,211.80	1,332.86	15,716.66	16,455	0.95513
July 1970-Dec. 1970	2,175	1,614	3,249.45	248.11	7,286.56	3,063	2.37890
Total	\$11,895	\$9,716	\$18,577.35	\$3,804.59	\$43,992.94	46,970	\$0.93662*
Percentage of Total Cost	28%	22%	43%	7%	100%		

* Average cost, not total.

students. The increase in costs for this category was due to an increasing pay scale for library clerks at Arkansas State University.

As can be seen from Exhibit II, the large cost item for the Reclassification Project was student workers. The number of students employed for the project at any one time ranged from two to six. Extra student help was also available at slack times from Circulation and Cataloging. The cost of student workers increased partly due to the fact that more students were employed each year, and partly due to a wage increase from \$1.00 per hour to \$1.45 per hour during the four-year period.

Materials account for the smallest part of the reclassification outlay. Figured into the material cost were \$0.006 for each book pocket, \$0.01 per card for Xerox lease cost, \$0.005 per card for card stock cost, and \$0.015 per volume for Se-Lin label cost. Since the reclassification procedure made use of the Dewey main entry card as the LC shelflist, the average number of cards reproduced per book was four. All of this made our total material cost per volume equal to \$0.081.

The "cost per volume" column illustrates the economics of scale in that, despite rising personnel costs, the cost per book remained about the same during the first three annual periods. The reasons for the increase in cost/volume during the fourth period is probably attributable to the higher professional staff cost, and the probability that a point of diminishing returns was reached in regard to increasing student hours without increasing supervisory personnel. The exceedingly high cost per book for the final period can be attributed to the fact that most of the work during this period was concerned with solving problems and "tying up loose ends."

The final cost per book figure of \$0.93662 was considered by all those concerned to be a reasonably accurate figure for other libraries to use in computing their forecast of costs associated with reclassification. There are, however, several facts about the project at Arkansas State University that must be compared with other reclassification projects in order to give the reader a better basis for comparison with his own operation, or other cost figures for reclassification projects. First is the fact that periodicals were not classified, and thus the cost per volume figure given in Exhibit II would not be far from the cost per title. Another is the fact that, despite efforts to hire students when freshmen, there was a large number of students who worked on the Reclassification Project for only one or two semesters. Therefore, there was a great deal of time spent in training new students.

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IN THE MAIL: MORE ON SUDOCs

I wish to offer my reaction to some very bad advice for federal government documents librarians which you published in your Spring 1971 issue. I refer to the article "Handling Changes in Superintendent of Documents Classification" by Robert M. Simmons (*LRTS* 15:241-44). The author correctly identified the three options available to documents librarians when there are changes in SUDOCs classification number notations: (1) continue old notations; (2) assign new notations as issued, leaving old notations on earlier material; or (3) assign new notations as issued, and change the notations on older publications to new notations. In recommending option 3, the author failed to properly weigh the advantages and disadvantages of the alternate courses of action. For the very small advantage of getting all issues of one title or series in the same general location on the shelf, he has accepted two very large disadvantages: (1) a large amount of added work is required to change old records and notations on older publications, and to reshelve and shift materials; and (2) the usefulness of the *Monthly Catalog* and other bibliographical tools of the Government Printing Office will be seriously reduced.

Simmons minimizes the amount of added time and work necessary to reclassify old material. This may be due to the fact that his own collection is probably comparatively small. His library has been a depository for only six years; it reported having only 110,000 book volumes in its general collection in 1969. A small college library such as his usually chooses only a small percentage of the document items available. However, if it has been a depository for a long period of time it may have a fairly large collection. On the other hand, most large university libraries will choose at least 90 percent of the items available and usually have a large collection whether they are old or new depositories. Many older state universities have also had depository status for many years. I am the documents librarian at a state university library which is also a regional depository. In our situation, following Simmons' advice would have required changing the numbers, records, and shelf location of thousands and tens of thousands of publications not only once, but as often as five times on some series of publications.

Following Simmons' advice would also seriously diminish the usefulness of the *Monthly Catalog* and other GPO bibliographical tools. The records maintained by the documents librarian are usually only a checking-in record with the following characteristics. They are a single entry author/title card file arranged either in shelflist order, or alphabetically by author or title. There are no added entries for subjects or titles. Most numbered publications in series are checked in only by number on a prenumbered form catalog card or Kardex. Such numbered publications include a large percent of depository publications. On the other hand, the *Monthly Catalog* has a subject index; it provides complete bibliographical information on numbered publications in series. The main method for retrieving government publications is by using the *Monthly Catalog*, and not by browsing in the stacks. Browsing in government documents is inefficient for other reasons: many documents are pamphlet size or do not have the title entered on the spine. When searching in the *Monthly Catalog* for older publications, one will find the corporate author and the classification number which was assigned when the publication was issued. If the depository library used this information and did not change its records and numbers, there will be no difficulty in retrieving the publication. If the records

and numbers were changed, the publications could be easily lost through failure to provide the more detailed cross-reference required, and would be more difficult to retrieve.

In dismissing option 1, which also involves using as the notation a number other than the one assigned permanently to the piece when it was issued, Simmons lists as a major disadvantage that it "would limit the usefulness" of the *Monthly Catalog* and other GPO bibliographies. However, when the same thing is proposed under option 3, this major disadvantage is dismissed as an "inconvenience."

Simmons also makes a major argument that the "purpose of a classification system is to bring like things together" and that the SUDOCS classification system fails to do this. I contend that the SUDOCS classification system does bring like things together. It is based on corporate author, rather than on subject or title. It brings together all publications of a major executive department or administration at a specified time period. Using Simmons' example, when *Welfare in Review* was published by the Welfare Administration it was classed and would be shelved with other publications of that agency. Now that it is published by the Social and Rehabilitation Service, it is classed and shelved with publications of that agency. Most classification systems are based on subject, but even a book subject classification system does not bring all books on one subject together. Many books deal with several subjects, but they can be classed by only one subject, hopefully the major subject of the book. Two types of retrieval devices are needed to find information: an index or catalog, and a notation numbering system which may or may not be classified. In an index or catalog, a publication can be assigned multiple entries depending on the scope of the work and the depth of the indexing. Classification specialists contend that it is more efficient to search and retrieve information from an index or catalog rather than from a shelflist or by browsing in the stacks. Whether or not the notation number is classified, it serves a very essential and basic purpose as a location device. One might use an accession number such as is done in many collections of technical reports, or a serial number such as is used for the Congressional Serial Set, or the notation might be the *Monthly Catalog* entry numbers which are used as notations in Microprint editions of nondepository publications. The important thing is to assign a specific order or shelf location for the publication so that once it has been identified in an index or catalog it can be easily found on the shelf or in a file.

Simmons fails to recognize another pitfall in his proposal. The permanent SUDOCS number is a unique number, assigned to that one piece only. Difficulties will arise in the case of general publications and revisions of numbered publications. In the case of general publications, for example, the book number is a Dewey number which has been assigned by SUDOCS. This number is not directly transferable from one author/series symbol to another. For publications issued by a long-established agency dealing with education matters, the Cutter number "Ed 8" may have been used twenty-five times. To separately identify these twenty-five publications, SUDOCS would have added a number following a shilling mark; for example, the twenty-fifth time this same Cutter number was used the book number would be "Ed 8/25." If that agency were transferred and got a new author notation, the next publication on education would be assigned a book number of "Ed 8" and not "Ed 8/26."

I strongly recommend option 2. Our library has a simple and firm policy to

use the classification number assigned by SUDOCs, to record the publication by the corporate author indicated by the author symbol of the classification number, and to change a number only if SUDOCs makes a change. In following this procedure, cross-references have to be prepared only once; i.e., when the change of author and/or classification number is made. It is not necessary to further revise, correct, or replace old records. It is not necessary to pull old material, change notation numbers, and reshelve the material. This could also involve a major project of reshelving materials on either side of the new location if numbers are changed on the older materials. Many libraries have probably also entered the number in ink since it is a permanent number, and would have difficulty in erasing old numbers.

I hope that federal documents librarians who have read Simmons' article have not followed his misguided advice. I would seriously recommend that Simmons reconsider the advantages and disadvantages of the alternate courses of action, looking ahead to the time when his library has a larger collection of government documents.—*LeRoy C. Schwarzkopf, Government Documents Librarian, McKeldin Library, University of Maryland.*

IN THE MAIL: MISOGYNISTS ALL?

In regard to the recent article by A. C. Foskett, "Misogynists All; a Study in Critical Classification" (*LRTS* 15:117-21, Spring 1971), I am a little surprised by his (or her) personal attitudes which seem similar to the ones being criticized.

Is it really fair to charge prejudice when at the time Dewey's first edition was prepared it was obviously designed for American libraries in an America which included a very small minority of non-Christian readers? In view of the overwhelming preponderance of books on Christianity what would have been the rationale for giving equal treatment to other religions?

Couldn't an equal case be made that "the compilers were [the antithesis] of misogynists to a man" and that in all probability they were women? Examples such as "woman" as a subdivision of customs and folklore and also as a subdivision of biography are charged with being prejudicial, when in all probability the compilers were simply reflecting publication patterns. The desire to criticize for the sake of criticism is continued with condescending comments on the historical difficulties encountered by women in obtaining higher education.

A separate number for the education of women is a reflection on the scheme as a whole, namely, that it is very resistant to change (even more so in the sciences), and the example given is certainly not unique. When we switch from Dewey to the works of Bliss or Rider, we are again faced with questionable arguments taken out of context.

There is a rich literature on the emancipation of women, and at the time it was written, it quite logically was placed in the sociology/social welfare classes. The facetious suggestion that "behind every crime there stands . . . women" is an absurd comment on the suitability of "women" as a subclass under sociology, just because sociology happens to include social pathology.

Let's do turn to sex! The fact that sex is more openly discussed in the "permissive society" doesn't necessarily imply that the chronological sequence under customs of the life cycle has dramatically changed. Several studies have

suggested that this is indeed true, i.e., about the same amount of sexual experimentation before marriage with a dramatic increase in discussions about it.

In the discussion of perversions, Foskett should be more specific since homosexuality in a biological sense, at the least, is certainly a perverted act.

Classification schemes are designed for libraries and must necessarily reflect a historical bias. Reform should be based on reason alone and not accompanied by arguments patronizing the aspirations of women's liberation.—*Dana L. Roth, Library Adviser, Central Library, Indiana Institute of Technology—Kanpur, India.*

Statement of Ownership and Management

LRTS is published quarterly by the American Library Association, 50 East Huron St., Chicago, IL 60611. American Library Association, owner; Robert Wedgeworth, editor. Fourth class postage paid at Fulton, Missouri. Printed in U.S.A. As a nonprofit organization authorized to mail at special rates (Section 132.121, *Postal Manual*), the purposes, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes have not changed during the preceding twelve months.

Extent and Nature of Circulation

("Average" figures denote the number of copies printed each issue during the preceding twelve months; "Actual" figures denote number of copies of single issue published nearest to filing date—the Fall 1971 issue.) *Total number of copies printed:* Average 12,125; Actual 12,300. *Paid circulation:* not applicable (i.e., no sales through dealers, carriers, street vendors and counter sales). *Mail subscriptions:* Average 9,840; Actual 9,642. *Free Distribution:* Average 836; Actual 781. *Total Distribution:* Average 10,676; Actual 10,423. *Office use, left-over, unaccounted, spoiled after printing:* Average 1,449; Actual 1,877. *Total (sum previous two entries):* Average 12,125; Actual 12,300.

Statement of Ownership, Management and Circulation
(PS form 3526, July 1971) for 1971 filed with the
United States Post Office Postmaster in Chicago,
September 30, 1971.

REVIEWS

Corbin, John B. *A Technical Services Manual for Small Libraries*. Metuchen, N. J.: Scarecrow, 1971. 206p. \$5.00. ISBN 0-8108-0388-7.

The author is explicit in his purpose, and states that the manual cannot be used without other standard texts already available:

This manual has been written for the practicing librarian in a small- to medium-sized library (college, school, public, or special) who suddenly has thrust upon him the responsibility of organizing and/or administering a technical services department. By no means is it expected to be a substitute for good formal courses in a library school; rather it is designed to serve as a refresher to those who have forgotten their formal training and as an aid to those who are partially trained.

This manual must be used in conjunction with the standard texts already available on technical services work. It should aid the librarian in organizing his routines and procedures; guide him through the exacting processes of acquisitions work, cataloging and classification, and further references and readings that will provide more detailed information and further knowledge on the work involved.

We are not informed what the author means by small- to medium-sized libraries, but I would guess he means those with less than 50,000 volumes. The book is simply written with terms carefully defined and could be of some use. However, the author makes pronouncements which sound as if they were immutable laws. Some of the dicta are dated and questionable.

One general criticism that can be made is that the suggested form letters are all examples of poor form design and therefore would be poor examples to copy. Also, although blanket orders and standing orders are mentioned, no mention is made of on-approval plans. The author is

redundant in his descriptions of similar procedures. For example, the sentences on receipt of Wilson and LC printed cards both read: "If the materials for which the cards have been ordered have already been received in the technical services department, the cards can be matched immediately with the proper titles and all can be forwarded for further processing" (p.147-48, 153). Such statements make the manual seem like a programmed learning text. The assertions which I have previously called dicta—such as "Before books or other materials can be placed on the shelves for use, each *must* [italics mine] be provided with a circulation card and pocket . . . ; each copy of a title *must* be property-stamped . . ." and "The pocket should be centered about one-half-inch from the bottom of the item, and the date-due slip about one-half-inch from the top of the item"—often represent questionable policy and usually result in the maintenance of many files.

There is one major referral error in the volume; it states that the section on printed cards is at p.100ff, when it actually is at p.144ff.—Henry Voos, Graduate School of Library Service, Rutgers—The State University, New Brunswick, New Jersey.

Inglewood Public Library. *Library of Congress Classification Adapted for Children's Books*. Produced by John W. Perkins, Paul N. Clingen, and Paul C. Jones. Inglewood, Calif., 1971. 162p.

As its title indicates, this is an adaptation, not an abridgment, of the Library of Congress Classification. The changes are so extensive and so arbitrary that it is hard to believe that one of its avowed goals—to "prepare children to use adult materials

(arranged by LC) by means of a gradual transition"—can be achieved. The order of the main classes is the same as LC, with the addition of a new class X for sports and recreation. Many of the original LC subclasses are retained, but many more have been deleted and their contents incorporated into other subclasses. The contents of the retained subclasses, therefore, are not always the same as in the original. Furthermore, some LC letter designations have been reused for an entirely different group of materials, while letter combinations not used by LC have been used for new subclasses.

Because both a broad classification and a brief notation were wanted, only the letter portion of LC has been used, with the addition of one- and two-digit numbers where more detail was needed. Since no author number is incorporated, there is no true call number. Instead, the first three letters of the author's name are placed beneath the class designation. The result bears little resemblance to a Library of Congress call number. It looks, in fact, more like some schemes devised for paperbacks than a serious attempt to organize a sizable permanent collection.

Some changes from LC appear to result from a preference for an accustomed grouping, such as the new CV class for individual biography and the classification of works of English and American authors by form in the new PP (Poetry) and reused PQ (Drama) classes. At least one change, the reversal in meaning of LC classes M and ML, seems pointless and unwarranted. Presumably, some relocations represent an effort to meet another stated requirement, that a subject should have only one possible location.

Whatever the reasons, there are some strange subject locations. Watchmaking is in CE (Time measurements), rather than TS (Manufac-

tures and trades). Although many books on cave exploration are either archaeology or the sport of spelunking, the only class listed is GB (Physical geography). The adaptation places air transportation in its new class TM (Aeronautics), although all other forms of transportation remain in HE (Transportation and communication). Pearl fishing remains in SH (Fish culture and fishing), but whaling has been transferred to TS (Manufactures and trades), where it accompanies a variety of manufacturing industries and a number of wholesale and retail trades that would fit more happily in HF (Business and finance). Dueling, classed in XN (Fighting sports), is hardly a sport, but most of the subjects listed under SH (Fish culture and fishing) and SK (Outdoor life and camping) are recreational in nature.

I object strongly to the establishing of the special subclass PZ for books in foreign languages. In a classification that purports to arrange books by subject, such a class is inexcusable. It separates books on the same subject, even editions of the same work, purely on the basis of language. There are other devices that can be used if a library wishes to shelve its foreign language material apart from its general English language collection. If the reason is the lack of foreign language facility in the public services staff, there is all the more need to assign a subject classification to foreign language books so that they can be more effectively used.

A revision, made after the Inglewood children's collection was reclassified, is dated June 1, 1971. Three subheadings have been cancelled, but no instructions are given for classing those subjects. Since one omission represents etiquette and another the nervous system, some direction seems necessary. The new subdivision of collective biography by subject rein-

forces my opinion that biography, both individual and collective, should be classed by subject as in LC. A new subclass, GS2, has been established for holiday stories, but no note was added to PN (Literature-General) indicating that Christmas stories are no longer to be classed there.

This absence of complete instructions is most exasperating. As a working tool for the cataloger, the book is poorly organized. The classification itself is a mere skeleton, showing only sketchily what subjects are intended to be included under the very broad headings. It is supplemented by an alphabetical index, followed by the index headings arranged by classification. Almost the only guidance for applying the classification appears on two pages preceding the index. Since most of these instructions apply to particular subjects, it would be more useful if they appeared at appropriate places within the classification. If a specific subject, which must be stated very specifically, is not in the index, the classifier must determine the proper class by analogy, which is not easy in a scheme lacking any clear statement of the intellectual or logical principles on which it is based.

As an adaptation it is a failure, because the notation is so simplified that it loses all visual relation to the original and because the actual subject content of its subclasses differs so much from that of the Library of Congress. As an original classification system it is amateurish, based on no discernible principles and therefore likely to result in the placing of subject material in inappropriate locations. As a reference tool it is inadequate and clumsy to use, with insufficient detailed guidance to make up for the lack of inherent logic and pattern.—*Frances Hinton, Head, Catalog Department, Free Library of Philadelphia, Philadelphia, Pennsylvania.*

Birket-Smith, Kjeld. *Local Applicability of the Library of Congress Classification; a Survey with Special Reference to Non-Anglo-American Libraries.* Copenhagen: Danish Centre for Documentation, 1970. 69p. (International Federation for Documentation. Committee on Classification Research. FID/CR report series, no. 10.) \$2.80.

Is the Library of Congress facing a future in which it will be the central cataloging and classification agency for a worldwide library network? The year 2001 is not yet confronting us nor should LC go into "future shock" just yet, but the possibility of adapting LC's classification scheme has been explored by librarians in other countries. This publication is a revision of an internal memorandum prepared for the Odense University Library (Denmark) when adaptation of the LC classification and the problems involved were apparently under serious consideration. The approach taken by Birket-Smith is that of a presentation for librarians who have had no extensive experience with the classification and includes a reliance on statements by librarians in the U.S. who have had practical working experience with LC.

This document presents a very brief overview of the development and construction of the LC classification, including prospects for future development; a summarization of the available literature on the use of LC, based on a few of the writers in the field; and an inquiry into the conditions necessary for the acceptance of LC in non-Anglo-American libraries. The first two sections of the report would serve the student approaching LC's classification for the first time, but are not sufficiently detailed to serve as a feasibility study which, of course, this paper was not intended to be. The summarization

of the literature might be a helpful beginning point for an individual library preparing a feasibility study for reclassification or changeover to LC; however, it could not supplant such a study as the commentaries are only briefly summarized and the bibliography could be updated (only one 1969 or later imprint appears in the forty-one-item list).

The survey section is divided into two parts to present views on both the theoretical and practical levels which were selected to provide a range of comment from enthusiasm through rational examination to opposition. Because of the direction of the inquiry in which he was involved, Birket-Smith bases his recommendations on practical case-study materials in this section rather than the theoretical considerations of where and how the strengths and weaknesses of LC developed.

The analyses of the classification given the most space in this section are those concerned with the problems encountered in actual use of the LC schedules, and with possible solutions for those difficulties. The most frequent comments center on lack of a basic guide to use, lack of a general index, slowness of revision, and lack of a complete law schedule. Birket-Smith then focuses on the significance of these problems for non-Anglo-American libraries. His concern is that while American librarians have been able to work with the classification despite the need for certain aids, their solutions would not be helpful to non-English-speaking librarians. What problems of interpretation and understanding of terminology occur when classifiers must either work in a foreign language or translate the schedules into their own language? What does the non-English-speaking classifier do with alphabetical Cutter developments which appear throughout the schedules when the translated terms do not alpha-

betize in the same order as the English words? Would classifiers need to check all class numbers on preclassified materials on the chance that the subject Cutter might have to be changed to conform to local usage? Would the slowness of printed revisions (in the absence of a fully developed shelflist) create interpretation difficulties in subject areas in which conceptual approaches within disciplines change quickly (as in the social sciences) or in which terminology is being expanded (as in the sciences and technology)? What effect will the Library of Congress's Shared Cataloging program have on the availability of preclassified materials? These and other questions are discussed by Birket-Smith as being particularly relevant for the Danish librarians for whom this paper was prepared.

Most of the literature concerning the adoption or adaptation of the Library of Congress classification scheme has been written by American librarians for American libraries. As a result, some of the questions raised in this report have not been given serious consideration, while others have not been considered in the context of non-Anglo-American libraries operating in terms of other library traditions. The consideration and discussion of the special requirements for local adaptation of the LC classification scheme makes this paper informative despite the repetition of frequently quoted material in the first two sections.—*Judith Ganson, School of Library Science, North Carolina Central University, Durham.*

Revelli, Carlo. *Il Catalogo per Soggetti*. Roma: Edizioni Bizzarri, 1970. (Studi sulla Ricerca e sulla Documentazione, 2) 245p. 4000 lire.

Carlo Revelli's book will no doubt be most welcome in Italy because he treats a bibliothecal problem—sub-

ject cataloging—in practical terms, whereas so many Italian scholars have been occupied with historical questions or abstruse problems. This is not to say that their writings are not important, merely that this work will help even the balance. It is not, however, a “how-to-do-it” manual in the manner of D. J. Haykin’s *Subject Headings: A Practical Guide* (Washington, 1951); if Italian librarians are looking here for that sort of thing they will be disappointed. Rather, the book is primarily devoted to summing up the opinions of various authors on the topic of the subject catalog per se and the formation of subject headings, a consideration of which may form the basis for practical guidance, and it is in this collocation that its interest lies. It is an approach that recommends itself to those who are too prone to rely on prescribed rules.

The opening historical section is a full and interesting treatment reaching back to developments prior to the latter half of the nineteenth century, which has been so often used as an overly convenient starting point. The section on Italian libraries is of particular interest in the United States, where relatively little information about them has been readily available.

Revelli reviews the arguments on dictionary vs. classified catalogs, as well as those pertaining to subject bibliography vs. subject cataloging and periodical indexing. Most of these are familiar to Anglo-American readers; in fact he depends most heavily on Anglo-American sources throughout, but with an admixture of German, French, and Spanish citations, which give the whole a broader aspect. For instance, American readers may be unaware that Italy lacks non-specialized indexes like the *Reader’s Guide*.

Revelli reminds us that the choice of a subject heading list becomes acute

when the librarian realizes that the subjects his library is using do not correspond to the needs of its users, or when the library contains a collection of uncoordinated schedules with headings chosen haphazardly and not conforming to uniform criteria. This is a problem that even American librarians with their elaborate structures of subject headings sanctioned by custom must face perhaps oftener than they are willing to accept. Revelli does not have the answers, but does pose the problem anew.

Not unfamiliarly, he emphasizes the need to identify the user population, and the need for an authority file. He also advises strongly against translating a foreign subject heading list and states that the best practice, particularly in the light of French and Spanish-American experiences, remains adoption of a national subject heading list. Although he does deal with such matters as compound subjects, singular or plural terms, and geographical place names, he does so by stating the possible alternatives; he does not set forth rules for the formation of headings. (English- and German-speaking librarians can be envious at the ramifications of his statement that the present Italian linguistic tendency is “absolute hostility” to inversion.) Nor does he specify filing rules, although as usual, he discusses various opinions about them. In this respect, it is somewhat surprising that he does not seem to have consulted the *ALA Rules for Filing Catalog Cards* among what is otherwise a most extensive list of source materials. Also, while he has evidently read both Akers and Mann, Wyner’s *Introduction to Cataloging and Classification* (1967) seems to have escaped him.

It is perhaps unfortunate that his treatment of developments relating to information retrieval systems such as uniterm indexing and key word or

chain indexing, has been relegated to a final chapter as being of interest to special libraries only. He apologizes for the somewhat cursory treatment, but this is unfortunate since for many today, "this is where the action is." However, in a most salutary finale, he underlines the fact that in considering the use of key word and KWIC indexes, the "same use of key words used as headings can be found in the first rudimentary alphabetic catalogs, which constitute the prehistory of subject cataloging." And, "the use . . . of numbers for subjects corresponding to documents . . . is reminiscent of indexing by author and subject in the catalogs of the 17th and 18th centuries as theorized by Adrien Baillet." It is well to be reminded again that *plus ça change, plus c'est la même chose*.

While the book is obviously addressed to an Italian readership, the historical introduction and the garnering and juxtaposition of various approaches to subject cataloging may well be profitable to others. The organization is clear, the table of contents quite descriptive; and a helpful summary of the individual chapters precedes the work. The bibliography is extensive, with standard items supplemented by older and lesser-known continental works.—*Sally Ann Huckaby, Case Western Reserve University, Cleveland, Ohio.*

Riddle, Jean, and others. *Non-Book Materials; the Organization of Integrated Collections*. Preliminary ed. Ottawa: Canadian Library Association, 1970. \$3.50.

Association for Educational Communications and Technology. *Standards for Cataloging Nonprint Materials*. rev. ed. Washington, 1971. 56p. \$3.50.

Cataloging rules for books, aimed at achieving some uniformity of the bibliographical control of publications

in libraries, have been with us for almost 200 years (the first nationwide code having been promulgated by the French Convent in 1791). Until recently, all existing codes of bibliographical description contained only rules for books and periodicals but made few or no provisions for any information-bearing materials that did not appear in the traditional format of a book. Even where such provision was made, such as sometimes in the case of maps, catalogers stubbornly maintained that these could be treated as somewhat misshapen books, the face of a map being the equivalent of its title page and the maker of a map becoming its "author."

As long as nonbook materials were only a minor part of library collections, their bibliographical control was either nonexistent or librarians tried to squeeze their description into the Procrustean bed of the rules for books without much regard to what the users of these materials needed to know about them when they were looking for them in library catalogs. The enormous proliferation of informational media other than books that are now collected in libraries and the advent of entirely new formats such as punched cards, magnetic tapes, computer tapes, etc., that are not covered by any of the existing codes have now led to the almost simultaneous publication of the two codes of rules under review. Although each code is aimed at a somewhat different audience, it is not an altogether healthy symptom of the state of the art of cataloging that two sometimes divergent sets of rules had to be published in neighboring countries in which the same language is spoken to cover the bibliographical control of virtually the same kind of material: anything that is published in a form other than a book or periodical. However, the very fact that there are now at least some rules for materials which form

a substantial part of the collections of many special libraries and information centers must be greeted as an advance toward better bibliographic control and higher uniformity in a field that has too long suffered from an almost complete absence of any agreed-upon rules.

There are, however, still some flies in the ointment. One of the main troubles (as in so many other areas of information science) seems to be the lack of a generally recognized name. The Canadian rules speak of the well-known "non-book materials," while the American rules prefer to call them "nonprint materials." Neither term is wholly satisfactory. As B. J. Enright pointed out recently in "Non-book Media Materials and the Library; a Note" [Library Association Record 72:368-69 (Dec. 1970)], "non-book" has a negative ring and suggests a division between the book and other media; "nonprint" is both negative and inaccurate, since pictures, maps, charts, and computer printouts are also printed materials (in fact, the first kind of "nonprint" material dealt with in the AECT rules is "art prints," from which one may deduce that an art print is a nonprint . . .). Enright suggested the term "Meta-books" which makes sense semantically but will probably not gain much popularity. The recent fad of calling nonbook materials simply "Media" is also misleading, since the book is as much a medium of communication as any other. In any case, the term "non-print" should not be allowed to gain any currency, and the AECT should change the term in any future edition of its rules. The lack of standardized terminology makes itself also felt in different names for some of the materials themselves: the Canadian rules deal with "phonotapes" and "realia," while AECT lists these as "audiotapes" and "specimens." There also seems to be some lack of agreement on what exactly constitutes nonbook

materials: the Canadian code has rules for stereoscope and microscope slides and treats motion picture loops separately from motion pictures; none of these is specifically listed in the AECT code which, however, has rules for computer tapes, mock-ups, and videotapes (not covered in the Canadian rules).

As to the rules themselves, the Canadian code, as indicated in its subtitle, generally tries to adapt the existing *Anglo-American Cataloging Rules* for books to other materials in a way that makes it possible to "integrate" entries in a unified catalog. Although this may be a desirable and legitimate goal for small- and medium-sized libraries (for which these rules were primarily compiled), it is doubtful whether the practice of treating nonbook materials as if they were misshapen books will assist users looking for such materials. Both sets of rules recognize that most nonbook materials lack authors in the traditional sense, and that therefore entry by title is the most useful approach. But the AECT rules certainly go too far when they try to cut the Gordian knot of main entry for non-book materials by recommending title entry in *all* cases, regardless of whether there is an author or originator known by name, or whether the material has a "title" at all. The application of such a sweeping rule might make life easier for the harried cataloger but leaves the user to his own devices. The example of a catalog card for an art print on p.11 shows that a reproduction of Salvador Dali's "The Sacrament of the Last Supper" is entered under "Sacrament," while the entry under the artist's name is given only as an alternative main entry or as an added entry to be decided at the discretion of the cataloger. Most people looking for this reproduction would probably remember it as "The Last Supper"

(especially since this is a recurrent theme in Christian art). In a library following the AECT rules where the public would be told to look for any art reproduction under its title, they would look (in vain!) under L unless they remembered the *exact* title. It might also happen that the collection contains art prints made in, say, France, Italy, or Germany, when the reproductions of the same artist's work would have widely different "titles." And what about modern art, where titles are either too general, misleading, or nonexistent? The same argument holds for music recorded on audiotapes or phonodiscs, where entry under title would disperse different renderings of the same work to all corners of the catalog, depending on whether the recording had been made in the U.S., Germany, Netherlands, Italy, etc. When the author's or composer's name can be easily ascertained, it should remain the main entry for a work of art and not be sacrificed to a "uniform" principle of entry under title.

A similar case is the recommended entry of maps under title. The example given on p.28 of the AECT rules has the entry "Europe (Map) National Geographic Society, 1969" which looks deceptively simple. But what if the title of a map is "Political map of Europe" or "Tourist map of Europe"? To abandon the unhelpful principle of entry by "author" of maps (as embodied in the *Anglo-American Cataloging Rules*) for the ambiguous and haphazard rule of entry by title is to put the ease of the cataloger above service of a map collection. Two large American map collections, those of the National Geographic Society and the American Geographical Society, use main entry under standardized area names. It is difficult to understand why other libraries should still shy away from the practice of entry under country or

area. This is the more astonishing since libraries have used the names of countries as "authors" of their official publications for more than 100 years, although in many cases the name of the country does not even appear in the publication and has to be supplied by the cataloger. The dogma that a publication may only be entered either under the name of the author or under its title but never under its subject as *main* entry is one of the biggest stumbling blocks to effective cataloging in contemporary libraries. The compilation of new rules for nonbook materials could go a long way toward eliminating such old-fashioned misconceptions.

The advice that catalogers should supply titles to untitled pictures or specimens tends again to solve neatly the cataloger's problem but leaves the user out in the cold. How could anyone interested in a picture of, say, a dog chasing a bicycle rider guess under which title such a picture has been entered in the catalog? The cataloger might have chosen the title "The Chase" or "Hazards of Bicycle Riding" or "Fido Chasing Tommy." These would be possible "titles." What presumably is meant by the advice to enter pictures, etc., under a "meaningful title" is to enter them under *subject*. Again, the subject entry, preferably made from a standardized subject heading list or thesaurus to ensure uniformity, should become the main entry, and a code of rules for nonbook materials should say so explicitly.

These criticisms should not detract, however, from the overall usefulness of the two sets of rules. The neat layout and good examples with ample annotations in the AECT code should be mentioned especially, as well as the fact that it contains rules for new media such as computer tapes and videotapes (neither of which has ever been the subject of cataloging

rules before). Since there exist now considerable collections of these materials, the rules proposed by AECT will certainly be welcomed, although they may yet have to be amended or elaborated.

The Canadian set of rules is expressly called "preliminary edition," while in AECT's *Standards* it is also stated that "constant revision" will be necessary in light of experience. Let us hope that these intentions will bear fruit and that we may be presented in the not-too-distant future with a code of rules for nonbook media which will form an integral part of the *Anglo-American Cataloging Rules* and a framework for MARC tapes. This would virtually transform such rules into an international standard and could serve as a model for other countries' cataloging codes.—*Hans Wellisch, Visiting Lecturer, School of Library and Information Services, University of Maryland, College Park.*

Boll, John Jorg. *Introduction to Cataloging. Vol. 1: Descriptive Cataloging and an Overview of Catalogs and Cataloging.* New York: McGraw-Hill, 1970. (McGraw-Hill Series in Library Education) 400p. \$6.95. ISBN 0-07-006411-3.

This is the first of a proposed set of three volumes which are designed as an introduction to cataloging. The other two volumes will be entitled *Personal Name Entry Headings* and *The Subject Approach*, respectively. According to the preface this volume was proven useful in independent individual study and in extension courses. Accompanying the text and the many illustrations of title pages and catalog cards are exercises which are designed to be answered in the book itself. The volume includes an answer book in an envelope on the back cover.

There are two main parts: part

A covers the purposes of cataloging, explanations of various types of catalogs (excluded, however, is any mention of the three-way divided catalog, which is increasing in popularity), and the physical description and parts of a book; part B is given exclusively to descriptive cataloging.

Part B comprises seven-eighths of the book. The first section explains the elements of a card and the arrangement, including spacing and punctuation. The other sections of part B follow the same order as the data are found on catalog cards: title and author statements, edition statement, imprint, collation, series statement, and notes. For each item that appears on the card several title pages are reproduced with an accompanying card to illustrate how the data will appear after they are transcribed in their proper order and form onto the catalog card.

There are three appendices: a glossary of terms; capitalization practices; and a list of cities which require no country, state, or province for identification. Also included is an index to the volume.

The examples are well chosen; explanations are clear; exercises are frequent and illustrative of the point being covered; references are frequently made to specific Anglo-American Cataloging Rules (AACR) used as authorities; and the book is typographically very attractive.

However, there are several errors in the book. One glaring error is the explanation of rule 141-K (dealing with unknown imprint dates) which was deleted very soon after AACR's publication. Some entries used are based on the old ALA rules and could be misleading to students as they are contrary to AACR. Let's hope that such errors will not crop up in the next volume.

This is a most thorough coverage of the descriptive cataloging for monographs; unfortunately, serials

and other materials are not included. Boll has made an excellent presentation of descriptive cataloging for independent study as a substitute for formal classes. It would also be a superb reference work for students who have difficulties in grasping the fundamentals of descriptive cataloging. This reviewer feels that its value would be greatly enhanced if the exercises were published as a workbook manual for those using it for independent study, and the text and illustrative material were printed in a separate volume to be used as a reference guide and supplementary reading.

The extensive coverage of so many details of descriptive cataloging is its outstanding feature as a text for independent study; but, on the other hand, this is a serious drawback in its use as a classroom text, because in a basic cataloging course (at either the undergraduate or graduate level) only two weeks or less can be used for descriptive cataloging. Even though it may find little use in classroom teaching, every cataloging instructor will want to have a copy of this book available as supplementary reading for the students in his beginning cataloging course.—*Donald J. Lehnus, School of Library Science, Case Western Reserve University, Cleveland, Ohio.*

Enser, A. G. S. *Filmed Books and Plays, 1928-1969.* rev. ed. New York: Seminar Press, 1971. 509p. \$12.00. ISBN 0-12-827050-5

This is a revised edition of Enser's index of the books and plays from which feature-length theatrical films were produced in the period 1928-1967. The current edition includes a supplement for films produced in 1968-1969. The book is arranged into three separate alphabetical indexes. The Film Title Index is arranged by film title and includes

the releasing company, year of release, and the author and publisher (British) of the original literary source. The Author Index is arranged by author and includes the original title of the literary work, publisher, film title (if different), releasing company, and year of release. The final list, the Change of Original Title Index, is arranged by the original book title, followed by the screen title where the two differ, publisher, film studio, and year of release.

Enser, who is a British librarian, has compiled a great deal of information that is extremely useful and difficult to obtain elsewhere. However, the usefulness of his work is somewhat reduced by the fact that he concentrates exclusively on American and British films. And, unfortunately, even within this limited frame of reference, his indexes are not as comprehensive as one might wish. A somewhat perfunctory check of several authors, namely, Ernest Hemingway, Theodore Dreiser, S. S. van Dine, Graham Greene, and Arthur Conan Doyle indicates that Enser has missed two films based on Hemingway, one on Dreiser, one on Greene, three on van Dine, and at least four on Doyle.

The Hemingway omissions are perhaps legitimate within Enser's context of listing only films based on published books or plays. One film, *Hemingway's Adventures of a Young Man* (20th Century-Fox, 1962), is loosely adapted from the Nick Adams stories, and the other, *The Gun Runners* (UA, 1958), is based on Hemingway's story, "One Trip Across," originally published in *Cosmopolitan* magazine in 1934, and later used as a basis for his novel *To Have and Have Not*. There is no similar excuse for the other films omitted, however, all of which were based on novels, plays, or short stories previously published in book form.

One excellent source with which Enser is apparently unfamiliar is the

series of Copyright Office publications, entitled *Motion Pictures* (available from the U.S. Government Printing Office), which lists in four volumes all motion pictures registered for copyright in the U.S. from 1912-1969. In many cases, authors of the works upon which films were based are indexed in these volumes, including several of the authors and titles overlooked by Enser.

His book would appear to be most useful as a supplement updating Richard B. Dimmitt's more inclusive *A Title Guide to the Talkies* (New York, Scarecrow Press, 1965. 2v.). Dimmitt covers the period from October 1927 to December 1963, and is not limited to English-language films. For the authors cited above, Dimmitt overlooked only *The Kennel Murder Case* (Warner Bros., 1933), based on the van Dine novel. However, the reader should be warned that Dimmitt's work is riddled with errors, false entries, duplications, omitted cross-references, etc. In checking the authors mentioned above, I found two references to films never released, one film ascribed to the wrong author, one entry not listed in the author index, and three instances where the changed American titles of British films are listed with no indication of their original titles or release dates. Also, I found at least seven entries for films loosely based on characters created by an author (e.g., Sherlock Holmes), but definitely not based on any specific published work.

In sum, then, while Enser is obviously not as inclusive as Dimmitt, he is considerably more accurate, up to date, and easier to use. For a more comprehensive coverage of the subject of film adaptations, I would recommend that libraries purchase both works. And, with both books at hand, the reader will find it less difficult to overcome the authors' respective British and American biases.

—Patrick J. Sheehan, *Reference Li-*

brarian, Motion Picture Section, Library of Congress, Washington, D.C.

Garrett, George P., Hardison, O. B., Jr., and Gelfman, Jane R., eds. *Film Scripts One*. New York: Appleton-Century-Crofts, 1971. 544p. \$4.95. pa. ISBN 0-390-34945-3.
———. *Film Scripts Two*. New York: Appleton-Century-Crofts, 1971. 548p. \$4.95. pa. ISBN 0-390-34946-1.

These are the first in a projected series of six volumes of scripts of films released between 1945 and 1970. The scripts are presented in chronological order: the first volume containing *Henry V* (1944), *The Big Sleep* (1946), and *A Streetcar Named Desire* (1951); the second, *High Noon* (1952), *Twelve Angry Men* (1957), and *The Defiant Ones* (1958). Projected volumes will include the British films *The Pumpkin Eater* (1964), *A Hard Day's Night* (1964), and *Darling* (1965). All but the last two in this series of eighteen screenplays are in the form of final shooting scripts instead of the customary reading versions which have most of their directions and descriptions excised before publication.

In appearance, these published shooting scripts resemble their unpublished counterparts, offering wide margins in which to note differences between script and film, make comparisons between the script and its literary source, and check impressions gained from viewing the film with supportive evidence in the text.

The editors, Elizabethan scholars from Hollins College and Folger Shakespeare Library and the wife of an executive of United Artists, have supplied for each script a two-page headnote which assesses the film's critical reception at the time of release, lists cast and production credits and awards received by the film, points up characteristics the film

shares with others in its genre, and discusses its own special characteristics.

Both volumes contain an identical introduction of thirty-five pages, a twenty-five-page glossary, a twenty-four-page bibliography, and an appendix of two documents concerned with the film production process.

The introduction outlines three main methods of studying film, deals with the steps necessary to the process of filmmaking and the place of the script in it. Explanations are offered of the film production terms which appear in the shooting scripts, together with examples of effective use of specific techniques in specific films.

An eight-page sketch of film history is impressive for its organization, but inconsistent in its identification of two key historical movements: on page five of the introduction the films of De Sica and Rossellini which were produced immediately after World War II are identified with the spirit of *cinéma vérité*, while on page 35 of the introduction the work of the same directors in the same period is identified as exemplifying *réalisme* (neorealism). Thus, this sketch fails to distinguish between two movements separated by philosophy, geography, and a decade in time. On the other hand, the glossary provides precise definitions of both terms and makes satisfactory distinctions between the two movements. Perhaps introduction and glossary will be reconciled in volumes three and four which are now in preparation.

The glossary of film production terms reflects both technical and artistic concerns. The terms are well chosen; perhaps a dozen of them are rarely found in other books on film and are welcome here.

The appendix reproduces a daily call sheet for the production of *The Young Lovers* (1964) and the first and last pages of the final shooting schedule for *The Best Man* (1964).

The bibliography, covering books published since World War II, is divided into sections on film art and history, screenplays, and the process of filmmaking, critical works, basic reference works, and selected lists of film periodicals and film distributors. The distributors of the films represented in the two volumes are not indicated, but James Limbacher's source directory, *Feature Films on 8mm and 16mm* (New York: Continental 16, 1968, 2d ed.), is cited.

Film Scripts One and Film Scripts Two were published too recently to appear in Clifford McCarty's *Published Screenplays: A Checklist* (Kent State Press, 1971) which lists screenplays printed to October 1970 and is swelled to 388 entries by the generous inclusion of every published excerpt of more than one page—less than 400 published screenplays for the more than 33,000 feature films produced. Even if it had not set and met such high standards of usefulness and selectivity, this new series would have been welcome. May the four anticipated volumes and the instructor's manual appear soon.—David L. Parker, *Technical Officer, Motion Picture Section, Prints and Photographs Division, Library of Congress, Washington, D.C.*

Kent, Allen. *Information Analysis and Retrieval*. New York: Becker and Hayes, 1971. 367p. (Information Sciences Series) \$14.95. ISBN 0-471-46995-5.

This is an introductory book on mechanized information retrieval based on a 1962 first edition and a 1966 second edition of *Textbook on Mechanized Information Retrieval*. The book will serve as a general survey of what has been done in the field over the past decade or so, especially for students without a technical background. The computer specialist may find it useful as an intro-

duction to the field, but will probably skip over large amounts of material long ago familiar to him.

The book demonstrates true revision in several instances. In chapter one the material on the nature of questions asked has been expanded, reflecting a recognition in information retrieval of the critical problem of the query and the user's approach to information sources, a changeover from an earlier idea that the only thing important for a solid retrieval system is a correctly structured information file.

Equipment examples have been updated. For instance, in chapter two a picture of an IBM 26 keypunch in the 1966 edition has been replaced by the IBM 029 machine.

This new book cuts out most of the section found in the 1966 edition on library automation, although the topic is referred to briefly, with less detail. Probably, this is an improvement because the section in the 1966 edition did not say anything very important anyway.

There is an appendix called "Supplemental Material for Classroom Use" which should prove handy for teachers looking for practical exercises to introduce students to the basic concepts presented in the text.

The primary disappointment of the book is an inadequate introduction to the awareness of the basic problems in information retrieval. The chapter on evaluation and the chapter on research list problem areas but fail in giving the fundamental character of these problems. The state of the art on a show-and-tell level is well presented, but the student will not get a true feeling for the underlying basic theoretical difficulties that have been uncovered in the last few years. One becomes a little frustrated by the numerous pages on gadgets and punched cards without any real discussion of

the strengths, weaknesses, and intellectual difficulties of the subject.

The problems of information retrieval are formidable, and students must be aware of them at the introductory level. One could suppose Professor Kent expects this sort of thing to be taken care of by the classroom teacher. This is a worthwhile book, but, as the author himself points out, the information retrieval field still has not adequately addressed itself to the real problems.—Don Cleveland, *Case Western Reserve University, School of Library Science, Cleveland, Ohio.*

Myers, Charles A. *Computers in Knowledge Based Fields*. Cambridge, Mass.: MIT Press, 1970. 136p. \$6.95. ISBN 0-262-13068-8.

This volume is the last segment of a larger research project on the implications of technical change and automation. The inquiry was undertaken by the Industrial Research Section of the Sloan School of Management of MIT and supported by a five-year grant from the Ford Foundation. The present inquiry is confined to five knowledge-based fields: formal education including the administration of educational institutions; library systems and subsystems; legal and legislative services; medical and hospital services; and national and centralized local data banks for research and administrative uses. This review, however, will be restricted to a consideration of the first two fields.

The analyses that this study presents were intended to throw some light on such themes as: the needs that encouraged or required the use of computers; the problems encountered in the use of computers; the ways in which the more recent applications of computers have differed among themselves and the costs involved; the implications of the computer for the nature of the work un-

dertaken and the resulting character of the man-machine interface; and the observable resistance to computers, with emphasis on the problems of acceptance of them by users.

In the field of higher education a major share of the author's attention has been devoted to computer-aided instruction (CAI) for which there is a substantial need: to relieve faculty of repetitive, structured, and drill-type work; to permit students to progress at their own learning rate; and to improve instruction in basic and highly structured courses. Computers are also needed for the efficient performance of administrative house-keeping functions. Many colleges and universities are offering increasing numbers of courses in computers and computer programming, and student interest in such subjects is definitely rising. But, Myers concludes, the application of computers to the educational process itself, CAI, is still very much in its infancy, costs are extremely high, and it will probably be ten to fifteen years at least before the necessary research has been completed and any substantial results can be shown. One concludes the chapter on the use of computers in higher education with the feeling that colleges and universities today have, like the inhabitants of Kansas City, gone about as far as they can go in the use of these machines given the present state of the art. In the administrative process and instruction in computer technology, higher education seems to be on reasonably substantial ground; but, with respect to the use of the computer as a teaching aid and in the educational process itself, the future is very far from being clear.

In preparing the chapter on library systems and subsystems, the author had the assistance of William N. Locke and Natalie N. Nicholson, director and associate director, respectively, of the MIT library, and,

as one might anticipate, J. Francis Rentjes, director of the MIT Engineering Systems Laboratory which is working on the Project INTREX prototype. Indeed, the author leans heavily on the publications of Project INTREX, Licklider, Kessler, Borchard, and for history, Vannevar Bush.

Myers sees the need for applying electronic information processing technology to the storage and retrieval of recorded knowledge arising from the fact that "publication has been extended far beyond our present ability to make real use of the record." He believes that conventional library technology is still "in the days of the square-rigged ships." It was Licklider, he says, in *Libraries of the Future*, "who probably wrote what was the first book on the subject. Subsequently, many other studies and publications, both special and general, have been undertaken." Nevertheless, the fully computerized library system is still far in the future, "if indeed it ever can replace a library with some printed material."

The need for automation, of course, grows out of the information explosion and the inability of the scientist to gain access to the published materials in his area of interest. Vannevar Bush saw the problem in 1945, and twenty years later along came Licklider and Project INTREX and nothing much, according to Myers, happened in between. Meanwhile, "the output or readable material doubles every 10 years." If one were to include the "unreadable material," the growth rate, according to Myers, would undoubtedly be much larger. That square-rigged ship will certainly have to do some scudding before the wind.

Initial attempts to apply computer technology to information retrieval were, says Myers, Kessler's project MAC at MIT's Lincoln Laboratory (ca. 1960), MEDLARS, MARC, IBM's Technical Information Retrieval

al Center, and North American Rockwell's EDICT. Recent attacks upon the problem include Stanford University's BALLOTS (Bibliographic Automation of Large Library Operations Using Time Sharing); the attempt, now abandoned, by Harvard, Yale, and Columbia to develop a system for medical literature; the automated indexing project at the New York Public Library supported by a grant from the Council on Library Resources; and, of course, the crowning glory of them all, INTREX, to which some five pages of description are devoted. But except for the last, these "are only in the planning stage."

Under the rubric of "Some Implications of Computerized Information Systems," the author identifies ten anticipated trends or results: the library of the future will become the central resource for an information transfer network that will involve the entire academic community supplementing the existing book stock with resources beyond the library's walls. To implement this development the assistance of a number of subject experts must be enlisted to aid in developing the projected system. Library personnel will be used more efficiently; there will be no reduction in the need for librarians so that "the national shortage of trained librarians will still confront small noncomputerized libraries," but librarians will be relieved of dull repetitive tasks. The main effect on computerized library staffs will be to enlarge their professional responsibilities. Long-range planning must take into account the "sensibilities, concerns, and even fears that present library staff people may have for the 'library of the future.'" For the library user automation offers the "advantages of a man-machine interactive system." Automation seems to offer little opportunity for "browsing," which is particularly important for the scholar working in the humanities. Since

many libraries will be unable to adopt the new automated technology in the foreseeable future, student-users must be trained in conventional library methods as well as those unique to automation. There must be "user feed-back" to test the effectiveness of the new methods. Finally, provision must be made for the protection of the rights of publishers and authors. It should be pointed out that most of these trends and problems to be solved have been drawn directly from the deliberations of the MIT Woods Hole INTREX conference of 1965.

The chapter concludes with the summary statement: "As in the case of computer-aided instruction, there is a difference between what is possible on an experimental basis and what is likely to be the long-run vision of computerized libraries. . . . The book-filled library, in the meantime, will be with us for some years to come. If computer-based information retrieval systems of the INTREX type spread, they will initially help the user of library services rather than rapidly eliminating the need for acquiring and storing published works."

Myers' conclusions respecting the impact of automation on libraries are relatively sane and realistic. The conservatism of his conclusions leads one to wonder whether the bright promise of INTREX may not have been dimmed somewhat by experience, for at the Woods Hole conference of 1965 the library world did, indeed, seem to be the engineer's oyster. But, whatever the reason, Myers' cautious predictions are laudable. His treatment of the subject, however, is superficial, and in places even misleading and heavily biased on the side on INTREX. Those who are knowledgeable in the field will find little in his treatment that is either new or helpful; the uninitiated would do well to read only the paragraph quoted immediately above.—*Jesse H. Shera*,

School of Library Science, Case Western Reserve University, Cleveland, Ohio.

Encyclopedia of Information Systems and Services; ed. by Anthony T. Kruzas [and others]. Ann Arbor, Mich.: Edwards Bros., 1971. 1109p. \$67.50.

"Directory of Information Systems and Services in the United States and Canada" would be a more accurate title for this big (61½ pound) book. I can find no justification for "encyclopedia" in the title; the word is misleading in that this work is merely a detailed listing of 833 organizations involved in information services beyond those conventionally offered in libraries, research institutes, professional and trade associations, government agencies, etc. Specifically, the editors have selected for inclusion "those organizations and services which are principally concerned with storage, retrieval, and dissemination of information, and in addition, are innovative, experimental, or non-conventional. A major emphasis is on computerization, micrographics, networks, advanced reference services, information centers, and data banks."

For each organization considered, the directory lists whenever possible: date of establishment; sponsoring organizations; head of unit; size and type of staff; description of organization; scope of subject coverage; input sources; holdings of recorded data; publications both serial and monographic; microform services offered; magnetic tape services offered; other services; computer and information processing equipment used; user equipment requirements; and user restrictions. There are twelve indexes, permitting access to the entries by means of project names; personal name of the head of the unit; subject coverage; types of services offered (several); titles of publications

produced; any acronyms and initials employed.

This is not a perfect directory in the sense that it includes every entry within its terms of reference and rigorously excludes all others. The compilation was done largely by questionnaire, and the editors disarm the critic, in advance, by admitting to the directory's incompleteness. "Although one major goal of this effort was completeness, it would be folly to claim that it was fully realized. A few stubborn organizations did not respond to any inquiry; others asked to be excluded. Some services were inadvertently overlooked, a few arrived too late to be included, and a small number were still in the early stages of development." There are, to be sure, omissions. But some spot checks, especially one made against the *Survey of Scientific-Technical Tape Services*, compiled by K. D. Carroll for the American Institute of Physics (AIP ID 70-3), reveal comparatively few.

So much for omissions. It is difficult, moreover, to draw a very sharp line between a special library and an information center. Here the editors appear to have favored inclusion in cases of doubt, and not a few of the entries (see p. 89 and 906, for instance) describe agencies which appear to offer nothing innovative from the standpoint of information processing or distribution.

The multiplicity of indexes is not as much of an advantage as might first seem. Consolidation of many of them, especially those organized by type of output, would have produced a more helpful index mechanism, especially when one approaches the indexes with a word or phrase which carries no hint as to whether it is the title of a publication, a tape service, a microform service, or the name of an agency.

The directory is reproduced from typewritten copy on 8½" x 11" leaves,

mostly one entry per page, with large margins and lots of white spaces. Its very high price can certainly not be explained on the basis of any typographical excesses or elegances, whatever the explanation.

Dr. Johnson said of dictionaries that they "are like watches; the worst is better than none, and the best cannot be expected to go quite true." The same goes for directories. If this one is not exactly an Accutron, it appears, nonetheless, to be a serviceable, if expensive, timepiece.—*George Piternick, School of Librarianship, University of British Columbia, Vancouver, British Columbia, Canada.*

Microform Utilization: The Academic Library Environment; Report of a Conference Held at Denver, Colorado, 7-9 December, 1970. Conference chairman: James P. Kottenstette. Editor: Alta Bradley Morrison. Denver, University of Denver, 1971. 231p.

Mr. Kottenstette and the University of Denver's Microform Studies Group should be complimented for organizing a conference which examined the multiplicity of problems involved in the utilization of microforms by academic libraries in such a comprehensive manner. The purpose of the meetings was "to develop information and to probe the difficulties of managing and using library microforms," the objective being to get some interplay between library administrators and the manufacturers and publishers of microforms.

In order to accomplish this purpose, sixty-two participants were judiciously selected: one-half were administrators from college and university libraries offering library science as part of their curricula, while the other half were specialists from industrial, governmental, research, and private areas. Some of the specialists

made informal presentations to the assembly during the morning sessions; others served as panelists during the discussions held in the afternoons. Problems to be analyzed were divided into three broad areas: (1) the impact of the introduction of microforms on present and future library technology; (2) the kinds of microform materials which have appeared and which might be expected to appear in the future, along with the problems they impose not only in providing but also in servicing the necessary attendant equipment; and (3) satisfying the requirements of the user.

The speakers ranged from Carl Nelson, who traced the history and development of microforms as only a man who grew up with the industry can, to Kottenstette who pointed out that not all users approach microforms in the same way so that there is a need for providing equipment and work areas which are conducive to these differing types of tasks. Allen Veaner asked the librarian's number one question: "Now that we have them what do we do with them," lacking a decent system of bibliographical control? Jeffrey Pemberton talked about the pending computerized information retrieval system of the *New York Times* and its plans to substitute microfiche for the mountains of paper material now in its morgue. Karl Klessig divulged the rather alarming news that there are even more new forms of microforms forthcoming with which libraries will have to cope. Other speakers included Charles Stevens, William Wheeler, Larry Block, Frank Crawford, Stevens Rice, Dale Gaddy, James Prevel, and Gordon Wright; they touched upon almost every other aspect of concern about microforms.

There is a synopsis of the afternoon deliberations and, although it is not a verbatim account, it does purport to accurately represent the points

of view expressed. The conclusions and recommendations of the participants are listed at the end of the volume. Even though more problems were raised than solved, it is to be hoped that a conference of this type does bring the library community and the developers of microform equipment and publications into closer communication with one another. The report is certainly an excellent source of information for anyone interested in what's going on in the world of microforms today.—*Robert C. Farris, Head, Catalog and Card Preparation Units, Purdue University, Lafayette, Indiana.*

Williams, B. J. S. *Miniaturised Communications*. Published by the Library Association, London, and the National Reprographic Centre for Documentation, Hatfield, Polytechnic, 1969. 190p. £1.50 (Members: £1.20) ISBN 0-85365-112-4.

For the person who has been away from the field of microreproduction for the past five years, or for anyone new to the field, I can recommend nothing better to give an overview than this publication. It is an excellent review, and concerns itself with uses, applications, and potentialities of microform in communication systems.

It is specifically addressed to the storage, retrieval, and dissemination of information of a graphic or technical nature in microform, and, for this reason, is of great interest to librarians and information scientists. The text is not too elementary, nor does the author attempt to couch his explanations and conclusions in hard-to-understand terminology. At the same time, the author includes a chapter on microform format and materials in a way most suitable for newcomers to the field.

Chapter four, covering library microtext systems, and chapter five, which concerns original publications on microform, combine a body of information new to the field. The book constitutes a basic course for the library student in aspects of microfilm which are becoming more and more important to the field of librarianship. For good measure, the author covers information retrieval as applied to microforms and includes a discussion of the theoretical factors and suggestions for retrieval devices, together with citations to specific retrieval devices in operation.

In all, therefore, this reviewer wholeheartedly commends this book to the profession.—*Charles G. LaHood, Jr., Chief, Photoduplication Service, Library of Congress, Washington, D.C.*

ERIC/CLIS ABSTRACTS

Selected and edited by ELLEN ALTMAN

The following abstracts are based on those prepared by the Clearinghouse for Library and Information Sciences of the Educational Resources Information Center (ERIC/CLIS).

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Payment must accompany orders totaling less than \$10.00. Book rate or library rate postage is included in the quoted price. Order blanks containing further information may be obtained from LEASCO Information Products.

Ball, Geoffrey H. *Classification Analysis*. November 1970. 120p. ED 716-482. MF \$0.95, HC \$3.00 (National Technical Information Service, Springfield, Va. 22151).

Institution: Stanford Research Institute, Menlo Park, Calif.

Sponsor: Office of Naval Research, Washington, D.C. Information Systems Branch.

Classification techniques, which include both clustering and discrimination, provide step-by-step computer-based procedures for sorting things based on notions of generalized similarity and on the "class description" desired. This paper surveys and classifies all classification techniques known to the author. A conceptual framework for considering these methods is developed. Techniques for interpreting and evaluating the results are given. An extensive bibliography is included.

Dinka, Tesfaye, and Okutcu, Davut. *An Analysis of Book Storage and Transportation Requirements of the Five Associated University Libraries*. August 1970. 38p. ED 049-767. MF \$0.65, HC \$3.29.

Institution: Five Associated University Libraries, Syracuse, N.Y.

The major objectives of the study were to produce a storage/transportation model which minimized the cost of storage space for book materials and cost of transportation for book materials. Costs are considered in relation to the time required to provide service. The data include land and construction costs, library space usage, and transportation. These data analyzed on an annual cost-per-volume basis permitted a comparison of all of the alternative models on a common denominator. Two versions of the final model are presented. One offers a solution to the delivery problem at the current rate of transaction between the five member libraries. Of the alternatives studied, United Parcel Service provides the optimum time-cost trade-off. The second version proposes that a high-density storage library be built, incorporating a computer-controlled Randriever system. This configuration solves not only the storage space problem but also enables the utilization of FAUL-operated vehicles, offering the cheapest and fastest delivery service when the loads are high enough. The centralization of these materials-handling services has implications for computerized coordinated acquisitions, serials control, status file interrogation, and microform services.

Caless, T. W., and others. *Strategies for Manipulating Universal Decimal Classification Relationships for Computer Retrieval*. December 1970. 40p.

ED 717-212. MF \$0.95, HC \$3.00 (National Technical Information Service, Springfield, Va. 22151).

Institution: George Washington University, Washington, D.C. Biological Sciences Communication Project.

Sponsor: Air Force Office of Scientific Research, Washington, D.C.

An investigation of the Universal Decimal Classification (UDC) as an indexing language for computer retrieval is reported in ten papers. Problem areas were identified (notation, schedules, application), new developments reviewed (combining precedence devices, subject analysis matrices, guidelines for schedule revision, pilot schedules, parenthesis-free notation for searching). Faced classification techniques applied to the UDC are recommended for better consistency in application.

Simons, Wendell W., and Tansey, Luraine C. *A Slide Classification System for the Organization and Automatic Indexing of Interdisciplinary Collections of Slides and Pictures*. August 1970. 267p. ED 048-879. MF \$0.65, HC \$9.87.

Institution: University of California, Santa Cruz. Library.

Sponsor: Council on Library Resources, Inc., Washington, D.C.

This system provides a classification scheme for the organization of general collections of slides and pictures with a broad subject coverage as opposed to the more typical slide classification system which deals with a single subject field. A suggested method of automatic indexing is included. This document is a tool for libraries and other collectors of slides and pictures who have had no ready-made system of classification available.

On-Line Remote Catalog Access and Circulation Control System. Part I: Functional Specifications. Part II: User's Manual. November 1969. 151p. ED 050-792. MF \$0.65, HC \$4.00 (The Ohio State University Libraries, 1858 Neil Ave., Columbus, Ohio 43210).

Institution: International Business Machines Corp., Gaithersburg, Md. Data Processing Division.

Sponsor: Ohio State University, Columbus. Libraries.

The Ohio State University Libraries On-Line Remote Catalog Access and Circulation Control System (LCS) began on-line operations with one department library in November 1970. By December all twenty-six libraries had been converted to the system. LCS utilizes the capabilities of high-speed computers, random access mass storage devices, telecommunication networks, and on-line terminals to provide both circulation services and access to the system by telephone. Part I states the objectives of the system, the function which it performs, the details of its interfaces and the format of its files and tables. Part II provides detailed instructions for use of LCS terminals.

Richmond, Phyllis, and Atherton, Pauline. *Subject Analysis of Library Science Literature by Means of Classification Systems: Outline of Criteria Needed for Evaluation*. 1968. 44p. ED 050-748. MF \$0.65, HC \$3.29.

Institution: State University of New York, Albany.

A related document is ED 050-742.

Three major sets of factors are involved in the evaluation of classification systems: purpose, design, and functional operation. Eight different kinds of classification systems for library science are differentiated. The outline according to purpose shows diversity and indicates the uniformity and perhaps the ubiquity of classification systems. The evaluation of design must relate to the purpose of the classification considered. Samples of the eight types of classification schemes analyzed for purpose

are shown to exemplify how many ways one subject, namely, classification, can be classified. This paper was prepared for the Conference on the Bibliographic Control of Library Science Literature, State University of New York at Albany, April 19-20, 1968.

Hines, Theodore C. *Vocabulary Control in Indexing the Literature of Librarianship and Information Science*. 1968. 25p. ED 050-742. MF \$0.65, HC \$3.29. Institution: State University of New York, Albany.

Related document is ED 050-748.

Problems in indexing library and information science literature occur because of the speed of introduction of new terms, the nature of class headings, and the uncertain terminology of the field. Vocabulary control requires control over the concepts selected (the depth of indexing), the form of expression of concepts, and the syndetic apparatus of the index. The context in which vocabulary terms appear, subject and aspect, subject and class entry, other types of entries (author, title, series, etc.), depth of indexing citation and keyword indexing, centralized and decentralized indexing, subject lists and thesauri, subject headings and classification are discussed. Indexing research ignores the codified record of past indexing experience including that of library subject heading work, which is the most carefully codified and tested, because of its use for a relatively shallow form of indexing. Ten general guidelines for planning indexing services for the literature are formulated and a model index is proposed. This is another paper from the Conference on Bibliographic Control of Library Science Literature.

Salton, Gerard, comp. *Information Storage and Retrieval . . . Reports on Analysis, Dictionary Construction, User Feedback, Clustering, and On-Line Retrieval*. October 1970. 521p. ED 048-910. MF \$0.65, HC \$19.74.

Institution: Cornell University, Ithaca, N.Y. Dept. of Computer Science.

Sponsor: National Science Foundation, Washington, D.C.; National Library of Medicine, Bethesda, Md.

Part I, Automatic Content Analysis, contains: "Content Analysis in Information Retrieval"; "The 'Generality' Effect and the Retrieval Evaluation for Large Collections"; "Automatic Indexing Using Bibliographic Citations"; and "Automatic Resolution of Ambiguities from Natural Language Text." Part II, Automatic Dictionary Construction, includes: "The Effect of Common Words and Synonyms on Retrieval Performance"; "Negative Dictionaries"; and "Experiments in Automatic Thesaurus Construction for Information Retrieval." Part III, User Feedback Procedures, includes: "Variations on the Query Splitting Technique with Relevance Feedback"; "Effectiveness of Feedback Strategies on Collections of Differing Generality"; "Selective Negative Feedback Methods"; and "The Use of Past Relevance Decisions in Relevance Feedback." Part IV, Clustering Methods, contains: "A Controlled Single Pass Classification Algorithm with Application to Multilevel Clustering" and "A Systematic Study of Query-Clustering Techniques: A Progress Report." Part V, On-Line Retrieval System Design, includes: "A Prototype On-Line Document Retrieval System" and "Template Analysis in a Conversational System."

Hendricks, Donald D. *Centralized Processing and Regional Library Development: The Midwestern Regional Library System*, Kitchener, Ontario. 1970. 89p. ED 050-780. MF \$0.65, HC \$3.29.

Institution: Midwestern Regional Library System, Kitchener, Ontario, Canada.

Chapter I discusses the Ontario plan and the relationship of the Midwestern Regional Library System and its Centralized Processing Center. Chapter II, "Centralized Processing," reviews the background, operation, and production of the center

including recommendations concerning space, layout of work, and staffing. Chapter III, "User Attitudes," focuses on the evaluation of the work of the Processing Center by the participating libraries and their reactions to the products of the center. Chapter IV, "Regional Library Activities," summarizes attitudes and ideas on other cooperative projects for the region.

Burns, Robert W., Jr. *The Design and Testing of a Computerized Method of Handling Library Periodicals (Title III)*. December 1970. 64p. ED 050-753. MF \$0.65, HC \$3.29.

Institution: Colorado State University, Fort Collins.
Sponsor: Office of Education (DHEW), Bureau of Research.

This research has developed a homeostatic arrival algorithm which will enable the user to anticipate the arrival of those periodicals having similar and predefined intervals between issue arrivals. The algorithm is based upon a data smoothing technique which utilizes the arithmetic mean and the standard deviation coupled with the construction of a confidence interval (expectancy band) around the sample mean. Arrival time then becomes the boundary of the confidence interval. The algorithm is felt to be capable of generalization to all types of libraries and to operate independently of the geographical location of the library.

Von Bodungen, Sue B., ed. *Library Lectures Numbers Five, Six, Seven, and Eight, November 1966–October 1967*. 1968. 61p. ED 050-731. MF \$0.65, HC \$3.29.

Institution: Louisiana State University, Baton Rouge. Library.

Lecture Five, on some experiences in library surveys and classification, concludes that reclassification or acceptance of the Library of Congress system provides an opportunity for librarians to reevaluate their organizational patterns of work, to make clear decisions about policies of work, and to remove deadwood from the collection. The national program for acquisitions and cataloging, described in Lecture Six, presents the potentials of developing a central source of bibliographic information on all materials of value to scholarship published throughout the world. The lecture on myths and realities in library education proposes changes in present curricula to prepare librarians for the realities of library positions. The lecture on improvement of book collections for academic libraries outlines methods and responsibilities for improvement and stresses the importance of library collections as the base from which an informed, individualized service can proceed.

Foskett, D. J. *Classification for a General Index Language*. 1970. 47p. HC \$1.20 (International Scholarly Book Services, Inc., P.O. Box 4347, Portland, Ore. 97208).

Institution: Library Association, London, England.

This publication is a simplified introduction to the reports of the Classification Research Group. The group has prepared a number of papers on theoretical classification schemes and has worked out their applications in detail for a few selected disciplines. The topics covered in this introduction are general and special classification information control, ordering of entities, analysis of systems, and problems and prospects. A bibliography of thirty-three references is included.

Sayre, John L., and Hamburger, Roberta, comps. *An Illustrated Guide to the Anglo-American Cataloging Rules*. 1971. 155p. HC \$5.95 (Phillips Univer-

sity, Graduate Seminary Library, Box 2218, University Station, Enid, Okla. 73701).

Institution: Phillips University, Enid, Oklahoma.

A large number of Library of Congress cards are used to illustrate most of the *Anglo-American Cataloging Rules (AACR)*. The rules are arranged in the same order as found in the *AACR* and are stated briefly along with one or more Library of Congress cards which illustrate that rule. Although prepared for use in a theological library, the compilation could also be useful for libraries which are training new staff members or for library science education.

Bourne, Charles P., and others. *Study and Comparison of the Indexing of the "Bibliography of Agriculture" in Relation to the Indexing of 15 Other Secondary Services*. June 1969. 106p. ED 048-899. MF \$0.65, HC \$6.58.

Institution: Information General Corporation, Palo Alto, Calif.

Sponsor: National Agricultural Library (DOA), Washington, D.C.

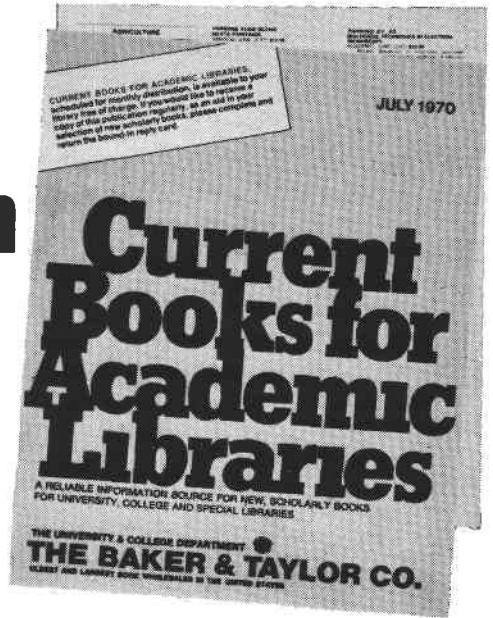
A methodology was developed to compare the indexing terms provided by the "Bibliography of Agriculture" and fifteen related secondary services for the same citations. The percentages of related and unrelated term pairs (one term used by the "Bibliography of Agriculture" compared with one term used by the other service) were given for services which use multiple term indexing and for those which use single term indexing. The number of subject access points per citation provided by each service for the same source material was also determined and compared. The unique subject access points contributed by the "Bibliography" and each other service are measured. Other comparisons made were: subject index, index term words assigned to an article, words in the title of the article, and subject headings used by the "Bibliography of Agriculture" and other services for the same citations.

Vance, David, and Heller, Jack. *Structure and Content of a Museum Data Bank*. 1971. 32p. ED 048-886. MF \$0.65, HC \$3.29.

Institution: Museum Computer Network, New York, New York.

This is a revised version of a paper prepared for "A Workshop on Data Collection and Data Dissemination in Museums" at the New York Metropolitan Museum of Art, June 5, 1970. The logical structure of the data bank is described from the user's point of view, without reference to machine implementation. The length of files, records, segments, and fields are variable and unlimited. Duplication factors are also unlimited. Sequence of files, records within file, and segments within record are random. All data are subject to unrestricted revision and expansion. Access is by directory in the form of multiple inverted indices. While the data files are identical in structure, they differ in content. Five "types" of records are identified: (1) unique object description, (2) biography, (3) publications, (4) events, and (5) places. A separate file, associated with its own set of inverted indices, is planned for each type.

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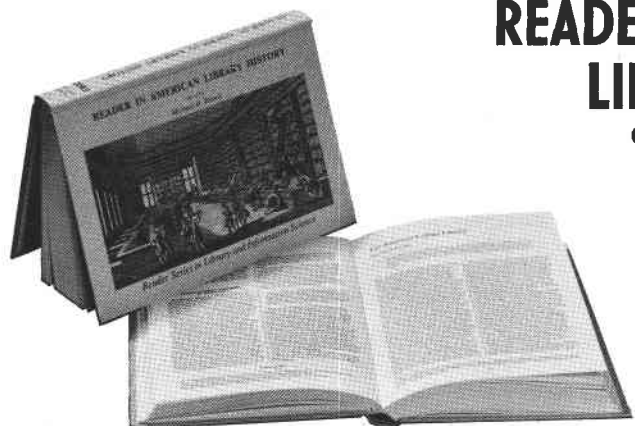
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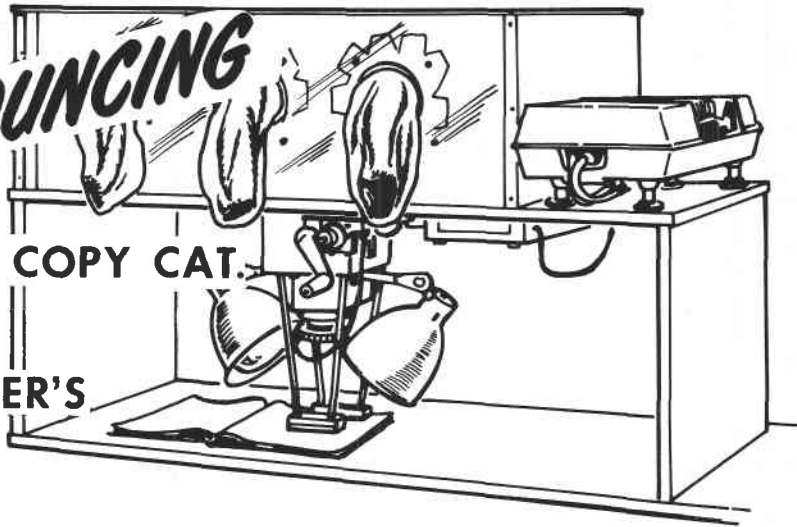
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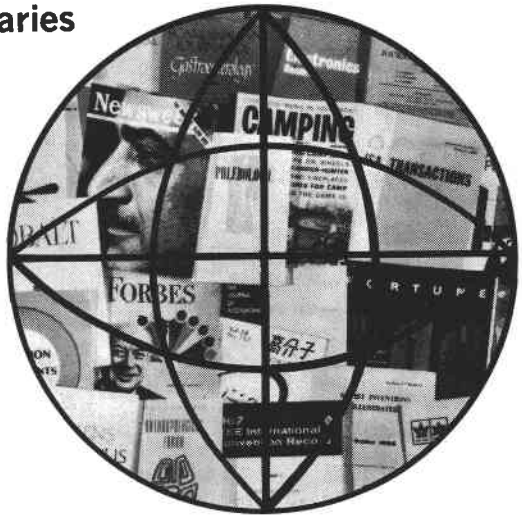
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