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Introduction

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IN THE PAGES that follow, some key issues and problems are explored and explicated with respect to the possibilities and requirements of a national program looking toward library automation. Library automation is a subject that has a good grip on the imagination and energies of an increasing number of librarians. Nevertheless, it is a young effort even as these are counted in this rapidly growing and changing field. Very few individuals within the library community can address the problems posed in the title of this issue of *Library Trends* with either confidence or expertise. The authors of the articles that follow can be numbered among such experts. It seems appropriate, however, to describe some of the steps that were taken to enlist their cooperation.

The initial overture by the editor of this issue of *Library Trends* was cast in terms of a prospective title describing an issue devoted to "System Design for a National Program of Library Automation." That title was rejected in favor of the present one which doubtless proved more felicitous in several ways. It removed concern that the collection of articles would yield a system design. It also shifted the focus to problems and issues that would need resolution no matter what the design of some eventual program for library automation might be. This tended to free prospective authors from time constraints and to allow them to view the problem set in a broader context.

What are the salient problems and significant issues which would retain essential validity irrespective of the specific character of a national program for library automation? It seemed reasonable to identify these problems and issues before seeking authors to write about them.

The advice of the library community, through opinions solicited from individuals who could address this question, proved invaluable. Opinions were sought and received from Scott Adams, Deputy Director of

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the National Library of Medicine; Verner W. Clapp, Consultant to the Council on Library Resources, Inc.; Richard De Gennaro, Associate University Librarian for System Development at Harvard University; Herman H. Fussler, Director of the University of Chicago Library; L. Quincy Mumford, Librarian of Congress; James E. Skipper, while still Associate University Librarian at Princeton University; Vladimir Slamecka, Director of the School of Information Science at the Georgia Institute of Technology; Charles H. Stevens, a leading staff member on Project Intrex at the Massachusetts Institute of Technology; and Melvin J. Voigt, University Librarian at the University of California, San Diego. The responses reflected the keen interest of the above-named "librarians" and also validated the usefulness of pursuing the task of collecting writings on this topic. There was considerable overlap in the expressions and judgments reflected in the assembled replies. Their assessments, however, yielded an outline which was accepted by the Publications Board of the University of Illinois School of Library Science and which was also provided to each invited author in order to describe a framework of reference within which his contribution would fit. The outline of topics was rather definite at this point in time; the gloss associated with each could be only conjectural and would inevitably be modified by the author. It should be useful to display this initial framework.

Introduction—Where are we with respect to a national program of library automation? Where are we going and what are the necessary milestones toward the development of such a program? Essentially, this article will provide an assessment of the present situation, of ongoing activities, and an appreciation of present outlook.

Standards—There is outstanding agreement on the requirement for standards in any future automated library system and therefore agreement on their necessity as part of the program leading to such a system. The explication of standardization requirements in library activities pursued in a computerized mode will be the focus of this article.

Economics—The costs of automation played against the resources of libraries is one aspect of this topic. Another aspect is the economic value of automated libraries. The latter will be difficult to treat. The economic resources are variable when played against different types of libraries. Cost/benefit relationships are at issue here.

Manpower—The requirements of the library community, faced with an automation program on a national scale, for manpower trained in

operating, developing, and doing research in computerized information processing poses a training and manpower allocation problem which is the subject of growing concern and warrants consideration.

Networks—There is much current concern with impending networks as a consequence of automation and computerized transfer of information and data. Everyone speaks of networks but no one knows what they are. There are questions of geographic, functional and other relationships as well as issues concerning roles and responsibilities with respect to network operations and organization, and the topic of initial development. In one sense, the entire issue of *Library Trends* revolves around this topic. The problem will be to isolate the network aspects from the other topics listed.

Hardware—Computer technology and its hardware will play a continuing decisive role in any developing program of automation. What role does computer hardware play? Is the technology ahead of the requirements that the library community is capable of explicating? What are the inherent promises of computers to which libraries must accommodate in order to exploit the technology in a maximum manner?

Sectoral Relationships—The intent of this topical heading is to allow exploration of the role and responsibilities of government, academia, professional societies, libraries, etc., in relationship to a national program. Assuming that economic resources require intervention and support of the federal government and possibly that of state and local government bodies, and further assuming that resources will be contributed by the other sectors as well, what are the conditions that need to be met to harmonize the various protagonists, provide for program development, facilitate a decision process which at the same time insures continuing cooperation and initiative of all participants?

Retrospective Conversion—This topic was suggested by several of the correspondents. The issue is simple: an automated system will require that the entire bibliographic record exist in machine-readable form. Retrospective conversion of the existing record is necessary. How can this be accomplished? Centrally? Cooperatively? What about costs? Is the above assertion indisputable?

Research—The anticipated national program is viewed not simply as a one-shot affair. It will be a continuing effort which will need support and depend upon the results of research specifically focused on library automation. This research is presently fitful and scattered in its focus.

This was the outline. Each author had this overview. Each author

on request provided an abstract of the promised article, and each author received all the abstracts. As the papers were received, they also were forwarded to each author. These articles stand as conceived by their authors. The conformance or departure from the topical outline reflects their own interpretations and insights. Some generalized inferences can be made.

The interrelationships between problems or issues that are conceptually separable becomes ever more clearly evident as the individual articles demonstrate. Research and its relevance to library automation is a recurring theme as one peruses the treatment of "hardware," "economics," "networks," and other topics in addition to the article on research itself. The problem of standards becomes a recurring refrain, as does the issue of the locus of responsibility for the component aspects of developing a national plan and resolving the problems and issues posed by the articles. The inference could also be permitted that we, the library community, are still quite distant from an effective, coherent national program leading to the design of a program for library automation. But we are moving closer; indeed, have moved closer even within the brief period spanning the conception of this issue and its preparation for publication. There is no concerted effort which unites the library community with respect to all the problems subsumed under the term "standardization." Nevertheless, the progress of the MARC format as a means of exchanging machine-readable catalog information and as a national and even international standard is impressive. The economics of automation are not sufficiently understood to provide concrete foundations for valuation of library services in the context of cost/benefit analysis; the recognition of data requirements has progressed, however, and experience is beginning to accumulate to facilitate analysis. Manpower continues to be a vexing problem, but increasingly library schools are generating new curricula that confront traditional librarianship with a new breed of information scientists. Although library networks are not really extant, and network planning still lies ahead, the availability of bibliographic information in a form that can be processed by the computer is providing real pressure on libraries to face the requirement to exploit the investment in this capability. Here libraries are faced with the reality of competition from information centers that have begun to provide "on-line" information service based on digitalized data bases provided by indexing and abstracting services. Some libraries have taken initial steps to assimilate such services within their own operations. Similarly, hardware

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developments are becoming less alien to the traditional library. Although few have their own computers, many are utilizing computers for portions of the internal operations. This, in turn, affects the development and training of library manpower and has significantly reduced the scare value of the computer as a replacement for the librarian. Nor are hardware developments restricted to the field of computers and associated hardware. Microform technology is moving forward and one can foresee a coupling with computer technology, as planned by Project Intrex. The dramatic development of central concern for the welfare of libraries was highlighted in congressional hearings examining recommendations looking toward the establishment of a permanent Library Commission, and thus providing libraries with an identifiable locus in our federal government. Perhaps no more dramatic development can be pointed out than the publication of the report by the Library of Congress on its study of retrospective conversion,[1] which caught the author of the article on this topic in mid-course.

These articles, even in combination, do not yield a design for a national program of library automation; nor was such design anticipated. If the selection of a topic was as judicious as was hoped for, the insights provided by these authors will be stimulating for future design efforts. Their contributions will be most useful, however, if the articles generate disagreement and controversy. It is the active engagement and concern of the library profession with these problems and issues that will ultimately pave the way toward a coherent and concerted effort that will exploit the advantages of automation on behalf of library service to which we are committed.

Reference

1. *Conversion of Retrospective Catalog Records to Machine-Readable Form; A Study of the Feasibility of a National Bibliographic Service*. Prepared by the RECON Working Task Force, Henriette D. Avram, chairman, John C. Rather, ed. Washington, D.C., Library of Congress, 1969.