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Research Libraries Enter the Machine Age

Betsy Knapp

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Recommended Citation

Knapp, Betsy. "Research Libraries Enter the Machine Age." The Ernest S. Bird Library Dedication Issue. Spec. issue of The Courier 9.4 & 10.1 (1972): 12-15.

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The
Ernest S. Bird Library
Dedication Issue

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Research Libraries Enter the Machine Age

by Betsy Knapp

With the move into the Ernest S. Bird Library, patrons of the Syracuse University libraries will not only be moving into a fine new building with space and comforts for books and readers, but will also be stepping across the threshold into a whole new library world.

It is difficult if not impossible for one who has never been a librarian to imagine the masses of tedious clerical detail that must be meshed together to make a book available when wanted. It is equally difficult to imagine the complexity of figuring out how to organize these details so that modern technology can handle them and speed up book processing.

Everyone knows of the ever increasing rate of book publication and many know that libraries are always struggling to keep pace by increases in purchases, but few envisage the magnitude of the challenge in devising a way for computers to prevent libraries from sinking hopelessly in a sea of print. Someone described the situation of libraries today as kin to that of a man with one foot in the 19th century, one in the 20th, gazing longingly toward the 21st.

There is a historical parallel to what is happening in libraries today in the crisis confronted by the United States census takers in 1880. Dr. John Shaw Billings, director of the census for that year, noted that the growth in the United States population between 1870 and 1880 made it impractical to continue to count the census by the usual manual methods if totals were needed much before 1890. Herman Hollerith, whose name is associated with today's data processing cards and who was an associate of Billings, responded to that challenge by devising the basic principles of coding information so that it can be handled in digital form by a machine. With this development, a process was started which is still revolutionary in character, as one generation of computers overtakes another and new uses emerge almost before the preceding bright idea has been fully absorbed.

It is too bad that Dr. Billings, who later became the first director of the New York Public Library, was not still alive and on duty in the mid-1950s when that library faced a crisis almost directly parallel to that of counting the census in 1880. As book purchases ran ahead of budgets and staffs at an ever

Miss Knapp was the Citizenship Librarian at Syracuse University at the time of her retirement this year.

more alarming rate, smaller proportions of the new acquisitions were cataloged each year. As the backlogs mounted, the productivity of the catalogers went down. A five year backlog of uncataloged books piled up in one two-year period. The odds of finding titles less than five years old in the public card catalog went down correspondingly. In addition to that, the older cards in the public catalog started to deteriorate. The system for handling New York's magnificent collection hit capacity.

Now, twenty years later, plans are being made to bring in modern machines to help solve the crisis, even though the budget is in such bad shape that library hours have been curtailed and services cut back. The trustees of the New York library recently asked a key staff member which he would choose if faced with the dilemma of abandoning the plans for mechanization or closing the library's doors. Without hesitation he replied, "I would close the doors; without mechanization, we will have no library."

The crises faced by other libraries, including Syracuse, are somewhat less dramatic, but are no less critical. Ask any student or faculty member who suffers invisible tortures as he asks: "Was the book I requested ordered?" "Has it been received?" "If so, why can't I have it immediately?" or "Am I never going to get it?"

The Syracuse University library staff has developed what is said to be one of the most interesting of current library experiments for solving this basic library problem of getting a needed book to a patron fast and efficiently. To handle *all* of the transactions affecting a book from the time it is ordered until it is withdrawn from the system, only *one* record will be made for that book. The essential information of the author, title, publisher, date of publication, class number, location, plus one or two numbers useful to the reference librarian, the book-keeper, and library management, is key punched by the same coding system developed by Hollerith, and stored in the University's computer. This single record can be used for ordering, receiving, accounting, cataloging, circulating, binding, among other chores.

Through the use of terminals, machines that function like typewriters and are connected with the computer either by cable or telephone, i.e., "on line," a librarian or reader can get to that information, now covering the 1,250,000 books in the Syracuse University system, fast and accurately. There are seven such terminals in the new Bird Library as well as others on the campus, which are potentially available to the library.

Let me describe my introduction to this wonderful process. After typing something on the terminal, I was asked by the computer, talking to me through the terminal, "What is the pass word?" I typed out a number the equivalent of saying "Charge it please." When I typed my name as requested, the computer responded with "Welcome to the S.U. Library Terminal Network." I proceeded with my queries, asking questions either by author or title, and was told all there was to know about the status of various books, until suddenly the machine said "eh" to me. I had forgotten to preface my

question with the code that told the computer that what I had typed was an author's name and that I wanted to know what books of his we had in the library. By this time, I, like my instructor, was referring to the computer as "he" — or maybe it was a "she." It was all very straightforward. The questions were answered courteously as long as they were asked precisely. At the end "he" said "good-bye," told me we had talked twenty-two minutes, and that the charge was seventy-four cents.

This remarkable single file eliminates the multitude of duplicate files which exist in most libraries and which repeat over and over the same bibliographic information for each separate library process. This elimination of repetitive steps means that many more books get on the shelves faster and with a smaller staff. Between 1965 and 1971, the number of volumes processed by the Syracuse University Library doubled but the number of staff members working on these routines decreased. Three years ago thirty-two percent of the library staff worked on technical processes; today only twenty-eight percent are doing that work, and the backlog of 50,000 uncataloged volumes has been reduced by almost three-fourths in two years.

How to mechanize the clerical routines of ordering and circulating books, and accounting for them, has received much attention from libraries all over the country in the last ten years and much has been learned. The next big frontier for machines in libraries — and still a very adventuresome one — is cataloging. On this front too, the university library at Syracuse has been working out some interesting ideas.

If the cataloging of a book is ever to be easier and faster than sewing a fine seam according to some charming, individual pattern, two things have to happen: there has to be acceptance among libraries of some kind of standardized format, and the information has to be available from large banks of data stored in computers.

The cataloging and classification work of the Library of Congress has gained wide acceptance as a pattern that is workable for most collections. For ten years now, Syracuse University has taken Library of Congress catalog cards and class numbers without change. This means that most books can be processed for the shelves by clerks. Large numbers of expensive catalogers are not needed in every library.

Since 1968, the Library of Congress has been coding its excellent catalog information so that it can be read by a computer. The product is now available to other libraries, referred to as MARC (*MAchine Readable Cataloging*) tapes. The Library of Congress format for this MARC data has been accepted internationally as a standard, i.e., it is in use not only in the United States but also in England, France, Germany, Scandinavia, and in due course will doubtless spread throughout the world.

The next big step will be to get libraries to cooperate together so that it will be economical to use this computer-stored data. One such network, covering Ohio, has been working since 1970. This Ohio College Library

Center (OCLC) has been able until recently to welcome additional participants. Negotiations are now going forward which will probably bring five upstate New York libraries (FAUL, the Five Associated University Libraries) and several major New England libraries (NELINET, New England Library Network) – Yale, Harvard, and Dartmouth among them – into the OCLC system.

All participating libraries are connected with the computer in Columbus, Ohio, the only computer in the world totally dedicated to library purposes, by telephone lines. At the various local terminals there are screens similar to those of television. When the library staff member asks for cataloging data for a given book, the facsimile of the Library of Congress card is flashed on the screen within two seconds if the information is there. If the card matches the book the staff member has in hand, the press of a button will give the order to reproduce the appropriate number of cards in a specified form. Cards are printed *and* put in alphabetic order that night and mailed the next day. Experience has shown that for the average-size college or university library, the computer will have catalog information for a majority of the items requested.

And what of the books for which the computer does not have information? Spot-checking suggests that for the most part these are the more specialized books, of interest to researchers who are likely to be aware of them either by author or title. If this is the case, such titles, if Syracuse has them, are accessible through the computer and its terminals. It will be possible to find them in the new Bird Library on the appropriate subject floor, and to borrow them by using an arbitrary control number, even though they have not been cataloged. For the present, because of a recent severe budget cut, the Syracuse University Library has decided that it will catalog only those books for which data is available at OCLC. The cataloging department has been discontinued as an organizational unit in the library system. Later, when the budget permits, specialist catalogers will again be a part of the staff, but they will be attached to the various subject departments and will catalog books on a selective basis according to departmental priorities. When original cataloging is resumed by Syracuse, the resultant data will be put into the computer bank in Ohio.

The prophets foretell that regional networks will multiply rapidly in the next few years. New York State anticipates action that will produce a network serving the whole state, public and private libraries, large and small, within five years. This may be a duplicate of the Ohio Center system or an adaptation of it. A similar development will probably take place in New England in the very near future. It is even reported that the nirvana of a national bibliographic network – with regions talking to each other even though they may have different types of computers – may not be too many millenia away.