



Circulation Systems

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INCREASING ATTENTION has been given during the last decade to methods of circulating books in college, university, and public libraries. The reason for the general interest in circulation systems is obvious. Circulating books, particularly in large libraries, has always been a burdensome operation, but the process has become increasingly so in recent years. Larger enrollments in colleges and universities since the war, increased population, and library consciousness generally, have resulted in a greater number of books being issued. Scarcity of clerical help, higher labor costs, and, to a lesser degree, lower "production" resulting from shorter working hours have added to the woes of circulation departments. To accomplish more work in fewer hours, it was imperative to find more efficient methods of charging and discharging books. Maintenance of professional standards was also a factor in stimulating librarians to search for simpler circulation methods. Although the primary function of circulation departments is to circulate books, there was concern for librarians who were unduly involved with clerical details, thus reducing the amount of time they could devote to work on the professional level.

A good circulation system should save the borrower's time, reduce costs, speed up charging and discharging, and allow circulation librarians maximum opportunity for professional work. These are sound and practical objectives. The continuing search for simplification in circulation procedures suggests that they are still too complicated, too costly, and too time-consuming.

It is not possible to say just when librarians became sufficiently disturbed about circulation work to search for better methods; it is probable that they have always been concerned to a greater or lesser degree. Ten years ago librarians were already writing about the "currently inadequate charging systems."¹ There have been dozens of articles on charging methods since then. As librarians began to experi-

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ment with new methods, circulation procedures, particularly in college and university libraries, became characterized by a high degree of dissimilarity. Probably in no other area of library work was there such singular lack of uniformity. This was not the case in areas of cataloging or acquisitions, where procedures were, to a great extent, standardized. In circulation work the field was wide open for experimentation, and inventive genius produced some interesting innovations.

Librarians have devised numerous variants of manual circulation methods in their search for ways to reduce clerical work and to charge and discharge books more quickly. The most rapid strides toward simplification came with the elimination of certain files, and with each file naturally went the filing operations that were required to maintain it. In some college and university libraries the student borrowers' file was eliminated; a very few did away with the file of faculty borrowers. These files told how many books a borrower had at a given time and, while convenient, the student file at least was not considered essential. Some librarians believed that the information borrowers' files gave was not worth the cost of maintaining them in large libraries. A more common step was the combining of the date file with the book or circulation file, the combined single file usually being arranged by call number. The problem then was to get at overdue books from a file arranged without reference to date. Here was a completely new problem. Examining every card in the file to spot those representing overdue books was impractical if the file was extensive. One device to accomplish this object was the use of metal or, later, cellophane tabs attached to the cards and extending above them. Because the tabs dropped off and interfered with filing, a new type of card was devised with the protruding tab a part of the card.² In each case the tabs were numbered one to thirty-one and the cards for books in circulation were filed usually by call number, under due date. Although the tab method is used today in some libraries with small circulation files, it was never satisfactory for larger libraries. A single-file system was devised consisting of a book record with a clue to due dates, provided by the application of color to the edges of the cards.³ A prearranged code based on color and the position of the color on the card provided a visible record of the date due.

Experimentation continued perhaps more intensively in college and university libraries than in public libraries. A new idea in manual charging systems uses a simple numerical notation as a charge record.⁴ Instead of a transaction number the accession number of the issued book is written on the call slip by the borrower, in addition to

the borrower's name and address and the author and title of the book. A predated due slip is put in the book. This corresponds to a transaction card which is basically a date-due card. Call slips are arranged first by date due and then by circulation number. A large amount of clerical work is avoided as books need not be discharged from a traditional circulation file because this has been dispensed with. The system has all the advantages of machine charging except that the serially numbered charge slips must be arranged by hand. This system embodies the same disadvantages described later for IBM operation and photocharging. According to the published description, the system is simple and requires no machines, yet it permits the combining of charging and inspection with consequent savings of time and money. The system gets returned books back into use with as little delay as possible. Its chief value lies in the increased efficiency with which books are made available to students after the books have been returned from circulation. Other manual systems require time and labor to discharge returned books.

Another university library circulation system⁵ involves manual filing but permits returned books to be sent immediately to the shelves. It, too, uses a transaction card which allows the pulling of cards from a circulation file after the returned books have been shelved. This system is not expensive. There are no book cards, the transaction card replaces the date slip, and regular overdue notices are sent from a charge file arranged by date; however, the amount of clerical work involved is prodigious in a library circulating five hundred or more books a day. It is possible that mechanical charging systems with certain faults are preferable to a scheme that involves so much work, especially if there is a shortage of clerical help.

Charging machines, designed especially for libraries, offered some help. The Gaylord charging machine is popular in many smaller college, public, and school libraries. The Dickman charger, once popular in smaller public libraries, is not in general use today. With these machines each borrower is registered, and unless his card is filed in the library, it must be carried with him. The card bears a metal number plate. This is the borrower's number, which is copied onto the registration card. Charging a book requires the clerk to insert the borrower's card in the machine together with a previously prepared book card, and the machine imprints the number from the borrower's card onto the book card. The due date may be stamped on a date slip in the book. The borrower's card is returned to the owner and the book card is filed by call number or by date due. There is still a file of

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charges, which, if arranged by call number, must be combed through for overdue items. The machine merely does more rapidly work that had previously been done manually.

Keysorting is becoming popular in college and university libraries and, used with other machines, in public libraries. Keysorting was invented so long ago that this method—sorting by means of a spindle run through cards with holes and notches in the margins—is now in the public domain, the original patent having expired. Keysorting was not designed for libraries; it is a manual system, used for many years by business firms and by the armed forces, that has been adopted by libraries. There are several manufacturers of keysort cards and of the punch machine the system requires; the McBee products are found in most libraries using the system. A recent book⁶ and several articles^{7, 8} adequately describe the operation of keysorting in libraries. Keysorting makes it possible for each assistant to do more work and to do it faster. It must be remembered that keysorting provides only one-way sorting; spindling the file removes cards but does not put them back. Filing is not eliminated by keysorting. As the keysort system generally includes the maintenance of a circulation file, returned books must be discharged from this file before they are shelved or borrowed again, thus producing the bottleneck inherent in manual operations. Keysorting provides a reasonably quick way for getting at overdues from a circulation file of charges arranged by call number. Another feature of keysort cards important in some libraries is that they may be bent or rolled without impairing their usefulness. This feature is important if the cards are to be sent through small-gauge pneumatic tubes. Keysorting has decided advantages for libraries if daily circulation does not exceed a few hundred although some libraries with much larger circulation are using the system with reasonable success. For these the more rapid business machine system might be considered.

Like keysorting, business machine systems were not devised for libraries. The two types of business machine equipment—the mechanical of Remington Rand and the electric of the International Business Machines Corporation—have wide application in business, industry, and the field of science. Libraries which have adopted business machine operations have generally used IBM. The application of business machines to libraries has been discussed in books⁹ and library school theses.^{10, 11} Business machines have been installed in several large college, university, and public libraries. In one business machine system charging a book requires the clerk merely to insert a

prepunched, serially numbered transaction card in the IBM time stamp and then to slip the card in the pocket of the outgoing book. Returned books can be discharged as fast as an attendant can remove transaction cards from the books. A book can be issued immediately to another borrower on a new transaction card without pulling a card from a circulation file (because there is none in a transaction card system) or from a date file of original call slips. If the book has been reissued several times on the same day, all previous charges for the book can be discarded; only the last transaction for a particular book on a given day is valid.

A set of prepunched transaction cards, good for use year after year, can be prepared by the nearest IBM service office; the library does not require a machine for this work. The only machine that a circulation department must have ready access to is a sorter with a matching device and short-card-feed, and into this are fed the transaction cards for one or more days' circulation. The machine matches cards representing returned books against a complete dated, prepunched set of cards, and throws into a reject pocket a master-deck card for each book not yet returned. Only these "rejected" cards need be checked against the original call slips which are filed by date. Overdue notices are then prepared from the original call slips. The operator can be engaged in other work while the machine sorter is identifying the overdue books.

In many colleges and universities the registrar's office uses business machines. In some, students carry business machine punched cards with such personal information as name, address, class, etc. If the registrar uses business machines, a complete duplicate file of student registration cards can be machine-produced for the library. Cards from the registrar may be received by the library in any order and then rearranged by the library's sorting machine. Brooklyn College Library receives from the registrar about 16,000 IBM cards at the beginning of each semester, and the library receives a correction card for students who drop out of college during the term or who report a change of address, or for those who marry and change their names. In this manner the library's registration file is kept up to date, and this is important in an institution with a large number of nonresident borrowers.

The disinclination of college and university libraries to use circulation systems based on a transaction card is no doubt due to the fact that these systems require the elimination of the current circulation file. The term "circulation file" should not be confused with a "location

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file." The former is a record of all books not in their accustomed place on the shelves; the latter is a record of long-term loans. If a manual circulation system is used, the customary single file is both a circulation file and a location file in that it includes records of books charged to readers for limited periods and records of books on permanent or semipermanent loan to departments. In a library using a transaction card system, the circulation file is eliminated; but a separate location file can be kept. This will contain records for books which are charged to departments, in the bindery, being mended, and missing books, i.e., records for all books not in place and not in current circulation.

In the absence of a circulation file, perhaps the most important single factor in transaction card systems is the waiting list, for it will contain not only titles wanted by borrowers but also those wanted by the library's preparation departments and by the reference and binding departments. If the transaction card system is used, waiting list cards arranged by call numbers should be checked against groups of books sorted by call numbers for return to the shelves. As a further check a student assistant should be sent to the shelves during slow periods with a block of waiting list cards to see whether any books have been overlooked in the regular checking. Books which repeatedly fail to turn up in their proper places on the shelves should be recorded without delay in the location file as missing, and the file should be checked regularly for all requested items not found in place.

The simplest form of business machine operation—that utilizing a transaction card—requires the library to adapt its operation to the capabilities of the machine, for the manufacturers of IBM equipment do not make machines for use in libraries. Moreover, business machines do break down, but a machine out of commission for a few days is not a serious matter in even the largest and busiest library; sorting is merely postponed until after the machine is repaired. Also, many colleges and universities have other business machines on campus—at least a sorter, the only machine essential in library operations.

Punched cards have already brought about revolutionary techniques in record handling,¹²⁻¹⁵ and their future possibilities are almost unlimited. The entire circulation operation would be completely automatic if a machine were available which would "read" the punches on cards carried by students as well as the information punched on book cards and would then punch all of the information on a third card. Such a machine is in regular operation at the Montclair, New Jersey,

Public Library.^{16, 17} Unfortunately, this model is unique; it is not in regular production and there is little likelihood that it will be until IBM is assured of a large market. This machine is ideal for libraries, but it has no known commercial application.

Transaction card circulation systems are not considered adequate in research libraries. The lack of a circulation file makes it impossible to know who has a book until it becomes overdue. Neither can a borrower be informed when a book in circulation is due. The research worker often needs a particular edition, and unlike the average undergraduate, he cannot make use of a substitute. He must know when the particular edition he wants will be due.

Transaction card systems have other shortcomings that must be weighed against the significant advantage of simplicity and speed. The weaknesses of transaction card systems all result from the impossibility of knowing where a book is until after it is overdue and the need to assume that if the book is not on the shelves and is not recorded in a location file, it must, therefore, be in circulation. These weaknesses affect not only borrowers, but most of the departments in the library.

In spite of their shortcomings more thought should be given to transaction card circulation systems. College and university librarians, by tradition, are not satisfied unless exact information is available about books in circulation, which, as explained above, is not furnished by transaction card systems. However, this information is not readily available in the increasingly popular open-shelf college and university libraries, even in those which use the conventional circulation file. With unhampered use of books students and faculty are free to remove them from the shelves and to read them anywhere in the library without making a charge record. Librarians in new-type libraries accept the situation because they appreciate the educational value of free access to books. The need for records of books used in a library and those used outside is not wholly comparable, to be sure, for the materials consulted in the building ordinarily are reshelfed within a few hours. Yet, however valuable a circulation file may be, it must be weighed in the balance with the reasons for modernizing the circulation system—eliminating clerical work, speeding up the charging and discharging process, eliminating the bottleneck caused by delays in discharging, and freeing circulation librarians from clerical details so that they can do professional work.

There is another business machine system used successfully in several large research libraries. No transaction card is used in this sys-

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tem, and exact information regarding books in circulation is available. In this system borrowers write on IBM punched cards the author, title, and call number of books, and their own name, address, and status (undergraduate, graduate student, or faculty member). Issuing a book consists simply of stamping the due date in the book. No distinction is made between books to be used in the building or outside. The IBM charge cards are key punched for date due, status of borrower, and borrower's identification number, and the card is then filed manually in a master file. (A collating machine would file the cards by call numbers if these had been punched. Key punching for date due, alone, requires one to two hours a day for 600 to 800 books circulated; key punching call numbers as well would take considerably longer.) The master file contains a card for every book not in its place on the shelves, including books in circulation, those charged to faculty studies, those sent to the mendery or bindery, and those reported missing in a "running" or in an annual inventory. Books charged to a permanent location can be recorded in a separate file as these are not involved in the current circulation procedure and would only slow the sorting process if recorded in the current file. Cards representing all books currently held by a particular borrower can also be brought together by the sorting machine. Returned books are checked off manually in the master file before they are sent to the shelves. If holding books at this point creates a bottleneck, they may be sent to the shelves immediately on return. In this case the card is pulled from the master file when the book becomes overdue and then checked against the shelves, but if a returned book is wanted by another borrower, the card is pulled at once from the master file.

Many college and university libraries which circulate large numbers of books are faced with the choice of a keysort system or of a business machine installation. The work to be accomplished, how well the system will do the job, and how much the system will cost—these should be the chief questions, and in this order. Too often the cost of the system is placed first with the result that a less desirable system is adopted. No study suggests how much should be expended on a circulation system. There are rules of thumb for the size of the book budget, for relative costs of periodical subscriptions, and for binding; but there appear to be no rules about the cost of a circulation system. If the choice is between IBM or McBee Keysort, the cost of renting expensive business machines and relatively low-cost punched cards in the former system should be compared with the low-cost punches but high-cost cards of the latter. It should also be borne in mind that

keysort systems do not eliminate the circulation file as do all transaction card circulation systems.

The factors influencing simplification of charging methods in college and university libraries are also found in public libraries—an increasing number of borrowers, cost and scarcity of help, and a desire to free librarians from clerical work. In addition, public libraries have been affected by an increased awareness of libraries. Years of continual good publicity and the promotion of public library use in the schools have produced results. Even when young people enroll in urban colleges and universities, there is still a tendency for them to use the familiar local public library for assigned books of which the college library has too few copies, and insofar as funds permit, public libraries generally try to meet this demand. Consequently, circulation figures have increased and public library charging methods had to be simplified.

The Newark charging system has been satisfactory for many years, but with the need for a faster, simpler system many public libraries have been installing photographic charging.¹⁸⁻²⁰ The Photocharger, developed by Remington Rand, is probably responsible for the popularity of this method of charging books. The Remington Photocharger differs from this firm's Film-A-Record machine and the Eastman Recordak charger in that the Photocharger photographs on a roll of paper whereas the other two record the charge on film. The three machines simultaneously photograph the book information on a card or pocket, a transaction card with a serial number bearing the due date, and the borrower's card or other form of acceptable identification. This record is then retained in the form of films or prints as long as it is needed for locating overdue records, i.e., for the loan period. As the books borrowed are returned, the transaction cards are removed and filed by serial number; and after a block of transaction numbers has been in the file for the period of the loan, any number missing from the series indicates an overdue book. The film or the paper record is then consulted, the name and address of the borrower is found, and an overdue notice is sent.

Advantages of photocharging are numerous. All slipping of books is eliminated, discharging a returned book consists merely in removing a transaction card, and any doubt about a borrower's having a particular book can be settled by reference to the photographic record. There are some disadvantages. The time saved in slipping will be lost if transaction cards are sorted manually. Keysorting or, better, business machines should be used for this purpose. The lack

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of a file of books in circulation makes it impossible to locate a book until it becomes overdue. Catching books on the "waiting list" is also difficult with photographic charging or any transaction card system. Clerks report a certain amount of eyestrain in reading film and in deciphering poor prints. Photochargers formerly went out of order without the charging assistant becoming aware that charges were not being recorded, but this has been corrected in later models. These are also equipped with an indicator to show the amount of film left on the reel.

Less popular than photocharging but used to good advantage in some public libraries is the audio method of charging books. Audio-charging^{21, 22} eliminates all handwriting. The assistant merely speaks into a receiver, giving the author and title of the book, the serial or transaction number, and the name and address of the borrower. Users of audio-charging report some embarrassment on the part of the borrower when the titles of certain books are dictated loud enough to be heard by other borrowers. This objection has been met by erecting a screen around the mouthpiece of the dictating mechanism. Another complaint is voiced by clerks who must play back the disk when overdue notices are to be sent. Unless the original dictation was clear and unless certain words in titles and in borrowers' names were spelled out, some interesting misspellings may appear in the notices borrowers receive. Spelling out multisyllabic names wastes a great amount of time. A borrower may not object to an author's name being misspelled but he may justifiably be irritated when the library takes liberties with the spelling of his own name. No library should do this to its customers.

Keysorting, too, has its place in public libraries. Used in conjunction with photocharging, keysorting provides a rapid way to sort transaction cards, and, without keysorting, full advantage of photocharging cannot be realized. Sorting by business machines is still faster.

The type of circulation system employed often determines the level of work circulation librarians perform; this alone justifies careful selection of the system best suited to a particular library. The separation of professional and clerical work, if not a major reason for introducing simplified circulation methods, is an important objective. It is incredible that so little progress has been made toward eliminating the clerical work connected with book circulation. Apart from wasting the abilities of librarians assigned to clerical work, there is another practical reason for seeing that librarians have professional duties.

This was voiced thirty years ago by C. C. Williamson, then Dean of the Columbia University School of Library Service, who said:

Until the distinction between clerical and professional workers is sharply made and adhered to the demand for adequate salaries for the professional group will prove ineffective because they will be economically impossible. A careful appraisal of the duties actually performed by many workers for whom professional salaries are demanded will show that they are often in large part clerical and not worthy of higher remuneration. Until library work is so organized that professional workers devote all their time and energy to professional tasks,—tasks which workers with less adequate general and technical equipment cannot perform without permanent damage to library service,—it is not worth while to expect librarians to be paid on a professional basis.²³

In 1954 R. B. Downs²⁴ wrote: "One of our first tasks, I think, is to achieve a clear distinction and separation between clerical and professional duties in libraries. The most telling objection to the acceptance of librarians into academic circles is that in perhaps a majority of our libraries there are too many routine, non-professional jobs being carried on by so-called professional staff members."

L. W. Dunlap²⁵ found that librarians appear to be more interested in acquisition and administrative problems than in ways and means to improve a library's services to its readers. This observation does not apply to all chief librarians, but, insofar as it is true of some, it is indeed strange that use and service is not of greater concern, because this should be the end result of all activity—ordering, cataloging, binding. Someone must be vitally concerned with the all-important library function of service to readers and use of the collection. The circulation department "must be the active agent that introduces books to . . . [a] complex group [of students.] and coordinates the library with advanced educational method."²⁶

What are some of the possible future trends in circulation work and public service? Certain of these can be predicated on the discernable trends which have been discussed. More of the larger college and university libraries are likely to adopt keysorting in circulation work. If these libraries overcome the existing disinclination toward eliminating the circulation file, the way would be clear for one of the photographic or business machine systems using transaction cards. On the other hand, university libraries may introduce business machines while still retaining the circulation file. Smaller college and

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university libraries are likely to adopt keysorting wherever card sorting becomes a burdensome process.

Public libraries appear to be re-evaluating their overdue fines practices. Libraries collect fines mainly to insure the return of books and to keep circulation flowing smoothly, and the cost of collecting fines is receiving and will continue to receive greater attention. One trend is toward lengthening the loan period so that fewer books are returned late and fewer fines are levied.

The trend in larger public libraries toward photocharging is likely to continue. The Newark charging system will no doubt maintain its popularity in the small public library, and the medium-sized library will have to decide whether to continue with the Newark system or adopt photocharging. The determining factors will naturally be available funds and need for quicker service. More attention will be given in public libraries to ease of users. Return receptacles at the curb will become more popular; new libraries will include drive-in windows in their plans, and where land is available, off-street parking areas for patrons will be provided. Messenger service to expedite the delivery and return of books to busy people will be used to a greater extent, and service to convalescent and old people's homes is likely to be extended. In short, ease of use and extension of service will dominate future trends in circulation systems.

Circulation librarians are the counterparts of commercial salesmen. Both meet the public, and upon them the organization relies for its reputation and success. The wise administrator will do well to give much attention to his salesmen.

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