

Chapter IV

COMPUTERIZED SERIALS CONTROL

There are several reasons why librarians have applied computers to serials operations. Some of them are cited. Serials data are easily separated from other library functions. Serials records are in need of improvement due to rapid growth and personnel turnover.¹ Records resulting from traditional methods are difficult to use and are generally not accessible to library users except through a library staff member (in contrast to monographs which are accessible directly through the card catalog). Traditional serials processing is costly and savings should be possible. Moreover, the repetitive nature of successive updating of serials records provides an appropriate application of computers.²

The first serials systems involved punched card input, master file storage on magnetic tape, update the master file through the use of punched arrival cards, computer manipulation of data and

¹Eleanor G. Eyman, "Periodicals Automation at Miami-Dade Junior College," Library Resources & Technical Services, 10 (Summer, 1966), 341.

²George Vdovin, Melvin Voigt, and David Newman, "Computer Processing of Serial Record," Library Resources & Technical Services, 7 (Winter, 1963), 72.

production of various outputs, usually in the forms of printouts. At the beginning, most of the activity has been in the area of simple listing systems. Such systems have little relation to the control and processing of serials because they are run parallel with conventional manual check-in systems. However, the benefit which can be taken from a machine-readable data base is considerable. Lists of titles received, including in some cases, holdings information, can be more readily updated and reproduced to provide greater access to this information. When the master file is created in the form of magnetic tape or a deck of cards, a new updated listing can be produced without rekeying the whole file. This is the main purpose and advantage of most of the computerized serials systems.³

Serials functions that can be automated are ordering and accounting, cataloging, receiving, claiming, binding, output products and management reports.⁴

Ordering and Accounting

This serials operation involves the following steps: requesting, searching, ordering and accounting. When new orders

³Don L. Bosseau, "The Computer in Serials Processing and Control," Advances in Librarianship. Vol. II. Edited by Melvin J. Voigt (New York and London: Seminar Press, 1971), pp. 109-13.

⁴Ibid., p. 119.

for subscriptions are received, the librarian searches the library holdings to see whether the items are already in the collection or on order. This function can be done automatically if the master file and in-process file of serials in form of magnetic tape or punched cards are created. After the librarian decides what titles are to be ordered, suitable funds are selected. Then information about the serials being ordered is recorded, such as title, publisher, price, agent, beginning issue, date of order, order number, frequency of publication, language, country of publication, subject and budget information. In a batch system, a deck of cards is then produced to enter each new order into the system. In an on-line system, information about new orders, when completed and verified, is entered directly into storage.

As soon as all purchase request information is in storage, the order form would be printed out ready for mailing, the in-storage budget and statistical records updated, and the bibliographical data would be ready for inclusion in the next library's serials catalog as title on order. If the library has separated fund file in machine-readable form containing complete information on the status of each fund, the fund file would be checked by computer to ensure that the funds are available and then is encumbered by the stated amount.

Renewals must be generated for continuing subscriptions and membership. Data on renewal dates and amounts as well as the identification of vendors or societies from whom to order have to be contained in the master serials record. Procedures to scan the

the serial records for renewal dates and to output renewal orders must be an integral part of the processing programs.⁵

Receiving

As serials are publications issued in successive parts and intended to be continued indefinitely, receiving is the major function of a serials system which creates library work load. A typical university library with 25,000 active serials might receive 100,000 different individual issue each year, an average of 300 to 500 per day. Each item has to be checked for validity, and the master records have to be updated. If issues are not received when due, they have to be claimed from the supplier which may be the publisher, or the agent, or the society. Items must be returned if they are defective.⁶ The receiving operation provides users as well as library staffs information on the presence of specific issues in the library.

In a computerized serials control involving receiving or check-in operation, there is a mechanism that facilitates the quick and easy addition of an issue to the holdings statement of the appropriate title. A mechanism commonly used is an arrival card that is computer produced in advance for each issue of the title

⁵Hayes & Becker, op. cit., p. 655.

⁶Ibid., p. 657.

predicted to arrive in a given month. The arrival card usually contains the title, its identification number, the vendor code, and the issue designation, i.e. title, volume, number, and date of the predicted or expected next issue. Another method requires the keying in of this information through the use of a keying or an on-line terminal.⁷

A file of arrival cards is prepared, one for each expected item. When a serials issue is received in the library, the arrival card is pulled from the file and put into a file of received issues. Then the computer prints a daily arrival-list, showing title, date and number of the issue received and the date it has been received. The library may cumulate these arrival lists weekly and monthly. The file of received issues is also used to update the holdings records in the master file. The person who has ordered the subscription can be notified by a print-out notice when the first issue is available. Some libraries have computer produced distribution lists or SDI lists at the time of receipt of an issue.

In an on-line system, as soon as an item is received, a personnel in the library with access to a cathode-ray-tube terminal can query the file and determine that the particular issue is in the library and available. While updating the file is relatively simple, there are no prediction capabilities, and so there is little

⁷Bosseau, op. cit., p. 127.

or no assistance for claiming in this kind of receiving operation.⁸

The use of the arrival card concept can be developed in an on-line system. It is found that the traditional 80-column arrival card is not flexible enough for the computerized serials system at the San Francisco Public Library since there are many necessary abbreviations and codes. Only a transaction number is prepared in the arrival card, allowing the computer to print up to 2,000 characters on each card describing the issue which the card represents. Each card shows full title, frequency, month due, issue date and number, coded order-source, full order-source name and address (when needed for claiming as on direct orders), and descriptive notes, such as routing messages or claim information. As the mail is received each day, cards matching the arriving periodicals are collected and sent to the computer. Then the computer prints a daily arrival list, with title, frequency, date and number of the issue received, and the date it was received. These arrival lists cumulate weekly and monthly.⁹

In the check-in operation, the problem of identification of arriving items has led to develop Code for Periodical Titles, published by the American Society for Testing and Materials. The Coden, a short and meaningful notation containing a 5-character alpha-numeric code, is suggested for each serial, for example

⁸Ibid., p. 132.

⁹Crismond, op. cit., p. 3620.

the notation for Library Quarterly is LIBQ-A, for the Publishers' Weekly, PWEE-A.

Claiming

The claiming operation is a natural by-product that can be obtained from the receiving system. After the monthly processing has been completed, an arrival card that remains in the file is considered for claiming. Since journals can be irregular; items may be issued out of order and foreign serials may be delayed in the mail, machine reporting as well as professional judgement are required for claiming. In most of the claiming systems, an automatic claim is generated when an issue is skipped, for example when vol. 20 no. 2 is expected and no. 4 arrives, a claim can automatically be generated for no. 3.

After consideration for claiming, arrival cards remaining in the file are sent to the computer. Then the computer produces claim letters addressed to appropriate vendors since vendor codes are included in the check-in data. Any automatic claiming system must interface with machine-readable accounting records in order to determine whether or not a given issue has payments up to date or has had its subscription renewed. This kind of confirmation is required to maintain a good credibility status with publishers and vendors.¹⁰

¹⁰Bosseau, op. cit., pp. 146-7.

In addition to ready-to-mail claim letters, a claim status report can be produced as well. The status report shows the claim number, when first claimed and the number of months the claim has been active. All claims remain in the system for six months, unless deleted, and new claim letters are mailed, to the vendor each month during that period. At the end of six months, claims are removed from the file automatically and listed so that other action can be taken if necessary, such as purchase the issue from another source.¹¹

Binding

It is reported that probably the most complicated aspect dealing with the binding system is the problem of keeping tabs on the arrival of indexes, tables of contents, and title pages.¹² As a result, determination that a volume is ready to be bound is different from the prediction mechanisms used in conjunction with checking in regularly arriving issues: However, the computer can be used to flag titles and their respective volume or volumes which are candidates for being bound. The complexity of this kind of

¹¹W.A. Wilkinson, and Loretta A. Stock, "Machine-Assisted Serials Control: Bindery Preparation and Claims Control," Special Libraries, 62 (December, 1971), 532-3.

¹²Bosseau, op. cit., p. 142.

operation depends upon the library policy: when volumes should be bound, and whether tables of contents and indexes are bound in with the volumes, or are attached to the volume later. The latter is an easier situation to deal with, since the program can automatically detect the completion of a volume by the addition of its last issue and produce an appropriate notification report that the volume is to be sent to the bindery. When the bindery process is held up to await the arrival of an index, appropriate codes must be included in the record of each title that indicates when or how the index or table of contents, title pages, etc. will arrive. With this kind of data in the record, information from the check-in process is monitored by the bindery module of the programs to produce a listing of titles and their respective volumes that are complete, including their index, title page or table of contents as well as binding instructions. The bindery personnel can take this list to the shelves and pull the titles and ~~their~~ issues off the shelves for binding. Upon the completion of binding and the return of a volume to the library, an update card, which was produced in parallel with the listing, is read by the programs in the regular update or a special binding run to change the status of a volume from unbound to bound.¹³

At the San Francisco Public Library, the binding control operation is an integral part of the file manipulation programs

¹³Loc. cit.

that handle check-in and file update. At the same time the computer calculates and predicts the issue date and number of a periodical, the computer also calculates the binding count. When the correct number of issues has been received, the computer produces a binding notification card, showing binding information: the title to be bound, the call number, the inclusive dates and numbers of the issues to be bound, a statement of what is to be bound, such as "12 issues per volume," and missing issues, when applicable. Cards are sent to all departments, issues to be bound are gathered, and cards are held in the departments as an "at the bindery" file until bound volumes are returned. Then cards are sent to the periodical department to be counted and processed by the computer to produce a last-bound-volume statement after the holdings in all catalogs.¹⁴

A bindery ready list prepared once a month may be produced. This list includes volumes that have been sent to the bindery in the daily cumulated supplement lists along with information on the date sent and the lot number. Returned items, rebinds, and items purchased for replacement are also listed in this list. This eliminates the need to prepare additional bindery charge cards, which in turn would have to be pulled and destroyed. The system uses a bindery input procedure similar to that used for daily arrivals to enter the bindery items into the right files for computer manipulation. The generation of the proper bindery instructions and the

¹⁴ Crismond, op. cit., p. 3620.

spelling out of the spine lettering format can also be handled.¹⁵

Cataloging

The elements for serials cataloging are the same as those for book catalogs. The complication is the need for added entries for variant names or older names of a given serial since some serials always have changes in title, such as a given journal may become two journals; two journals may merge into one. Serials cataloging also deals with the problems of the development of subject codes and lack of standardization.

The biggest problem is the development of subject codes since the Library of Congress classification symbols are subject headings that do not lend themselves to computer operations.¹⁶

The lack of standardization, especially in the area of corporate entries, is evident when forms of entries for serial publications used in different libraries are compared. As libraries begin to use the record format in their own serials system applications, the individuality in serials cataloging continues. So even as machine-readable data bases for serials become more readily

¹⁵Audrey N. Grosch, "University of Minnesota Bio-Medical Library Serials System," Special Libraries, 60 (July-August, 1969), 352-4.

¹⁶Andrew D. Osborn, Serial Publication; Their Place and Treatment in Libraies (2d ed. rev.; Chicago: American Library Association, 1973), p. 221.

available, cataloging of serials makes little use of them and has yet to feel any real impact from the computer.¹⁷ However, there are some developments directed towards serials standardization, such as the MARC Serials Distribution Service (MARC-S), the National Serials Data Program (NSDP), the International Standard Bibliographic Description for Serials (ISBD-S), the International Standard Serial Number (ISSN), and the development of Coden for Periodical Titles.

The MARC-S has been distributing machine-readable records for all Library of Congress serials in roman and nonroman alphabets given printed card cataloging since 1973. The goal of MARC-S is the creation of multipurpose machine-readable serial records, with standard catalog data in the MARC serial format, for LC's own data base and for dissemination to libraries and related communities.¹⁸ It is suggested that to be successful in the field of serial publications, MARC will have to abandon card methods and to think much more in terms of the emerging book catalog techniques.¹⁹

The NSDP is the United States national center of UNISIST's International Serials Data System (ISDS), which has responsibility

¹⁷Bosseau, op. cit., p. 123.

¹⁸Josephine S. Pulsifer, "Comparison of MARC Serials, NSDP, and ISBD-S," Journal of Library Automation, 6 (December, 1973), 194.

¹⁹Osborn, op. cit., p. 221.

for controlling the assignment of the International Standard Serial Number (ISSN). The NSDP is responsible for assignment of the ISSN to serials published in the U.S. Serials published outside the U.S. are assigned by the appropriate national center or by international center in Paris. The prime objective of the NSDP is to provide a data base of serial publications for the three national libraries: LC, National Agricultural Library, and National Library of Medicine. The program is aimed to be beneficial to the national user community, including libraries, subscription agencies, publishers, and abstracting and indexing services.²⁰

As set forth in the ISDS Guidelines, ISDS centers will develop and maintain national registers of serial publications which contain all the necessary information for the identification of the serials. The international center is to distribute a printed register, in ISSN and title sequences, as well as a machine file of all titles, including a regular supplement. NSDP plans to publish similar registers containing a subset of international register.²¹

NSDP must follow the ISDS Guidelines in order to provide the international center a set of data elements considered necessary for identification of the serial. Certain other elements are defined as optional ISDS elements. NSDP has defined certain additional elements as needed for the national record. International Standards

²⁰Pulsifer, loc. cit.

²¹Ibid., p. 194.

Organization (ISO) standards must be followed where applicable.²²

The ISBD-S defines the elements necessary for the identification of serials, assigns an order to these elements in the entry, and specifies the punctuation designating these elements. The ISBD-S as a descriptive catalog record only, is not concerned with access points to the record. It is not a machine format, though its standard order of elements and standard punctuation greatly assist the machine identification of the various elements. The ISBD-S will be put into practice by LC when it is accepted by the American Library Association and incorporated into the Anglo-American Cataloging Rules.²³

Coden is reported to be the best established system maintained under the cognizance of the American Society for Testing and Materials. It has been adopted by several indexing and abstracting services, such as Chemical Abstract Service, as the basis for controlling union lists and computer operations.²⁴

Output Products

In general, output products consist of many listing that can be generated from a computerized serials system. Some of them are

²²Ibid., p. 195.

²³Loc. cit.

²⁴Hayes & Becker, op. cit., p. 655.

intended for internal use but the reader can also benefit from them. Alphabetic listings of titles are produced by all of the systems. Some information such as the branch library or other libraries in which a particular title is located, its call number, whether the latest issue is on display shelves or in the stacks, and the holdings are included in these types of listings. Some systems maintain detailed holdings only for internal purposes and generally, only the simplified or open holdings statements for public use. Usually the system that does not involve a check-in operation will provide only open entries since they are not updated frequently enough to warrant the inclusion of more detailed holdings.²⁵

The usefulness of the output products depends upon the frequency with which they are produced, and whether or not they are effectively supplemented between update intervals. The more complete systems that operate check-in functions typically produce monthly printouts of complete and detailed holdings data, with daily supplements that are cumulated weekly. An on-line system can provide the staff up-to-the-minute holdings information on all titles through remote terminal inquiry. Complete and up-to-date holdings information, including the latest newly acquired titles, is always available to the user and staff. Printouts are distributed to various departments in the main library, to branch libraries,

²⁵ Bosseau, op. cit., p. 148.

and on the desks of reference librarians and those handling inter-library loans.²⁶

Most printouts are produced on regular computer printers, but recent advances in technology have brought about the use of other means of generating printed information. One of the more common in use for the printing of listings involves a Computer Output Microfilm which generates microfilm directly from a magnetic tape file.²⁷

A representative sampling of the types of printouts that have been produced by operating serials systems includes the following:

"MASTER FILE LIST: alphabetical arrangement by main entry; including detailed holdings statements, special codes, tags and delimiters, internally used identification numbers, etc. This list is usually available only to staff for internal processing purposes.

PUBLIC PRINTOUT: alphabetical arrangement by main entry or title. These include monthly, weekly, and daily listings; they are usually devoid of the special codings and other information of no interest to the public; they are often less compact than the master list and are formatted in a more appealing manner to satisfy the patron's needs.

²⁶Loc. cit.

²⁷Ibid., p. 149.

SUPPLEMENTS: printouts of daily receipts, often cumulated weekly until the next update.

BRANCH LIBRARY HOLDINGS LIST: includes only the titles and holdings for the given branch library, containing the same general information as other public printouts.

TITLE LIST: an abbreviated list of title and their locations without holdings and other information.

SUBJECT LIST: a printout containing the usual public printout information but subdivided by subject.

SHEFLIST: arrangement of titles (including appropriate holdings information, etc.) in call number sequence.

DUPLICATES LISTS: listing of all titles with more than one active subscription in the library or library system.

CROSS-REFERENCE LIST: printout of all cross references used.

SUBSCRIPTION AGENT LIST: alphabetical listing of titles obtained from each agent.

ACTIVE TITLES LIST

INACTIVE TITLES LIST

ON ORDER LIST: items in process."²⁸

Of all the output products, the most common is the public holdings list which is a first step toward a union list of serials.

²⁸Ibid., p. 153.

In a union list operation, supplying data for the system is usually the only effort required of the participating library. In some systems, the participants merely code their titles and holdings data onto forms which they compile and then send to the coordinating library. The participating libraries do not have to deal with the conversion of data into machine-readable form, and they realize the benefits of a single system since they are all using the same record format and thus the same data manipulating software. In addition to the union list produced, with its value for interlibrary loan and reference purposes, an added incentive to the participants is the possibility of producing custom lists for each individual library, including only the member library's own titles and holdings information.²⁹

Management Reports

An important advantage of the computerized serials systems over most manual ones is the ease with which statistical reports can be provided at minimal costs. Statistical data is easily compiled as the computer program monitor file activities, as well as daily, weekly, and monthly transactions. Any statistical report or analysis is possible if the necessary data is accessible. Usually there management reports are total number of titles; number

²⁹Ibid., pp. 121-2.

of active titles; number of inactive titles; number of cross references; number of new titles added during update; number of deletions; number of items checked in during a day, week, or month; number of titles with more than one subscription; growth statistics by month and year; number of items in given groups, e.g. subjects; complete volumes, added and/or volumes bound; and computer run times.³⁰

The importance of the various reports to administrative planning is quite apparent, since the uses made of them are as diverse as the statistics they contain. For example, a comparison of issues check-in with the growth rate in number of titles provides a measure with which to project staffing requirements. When accounting data are included in the system, cost records are easily maintained and budget projections readily prescribed.³¹ Statistics for use in selection processes indicate strengths and weakness, and function as a guide in developing subject and foreign language representation and geographical distribution of the titles.³²

System Description

As mentioned, ordering and accounting, cataloging, receiving, claiming, binding, output products and management reports are serials

³⁰Ibid., p. 154.

³¹Loc. cit.

³²Crismond, op. cit., p. 3621.

functions that can be automated. Some libraries have all of these functions computerized, some operate only parts of them. Figure 1 presents an overall schematic of the serials operations.

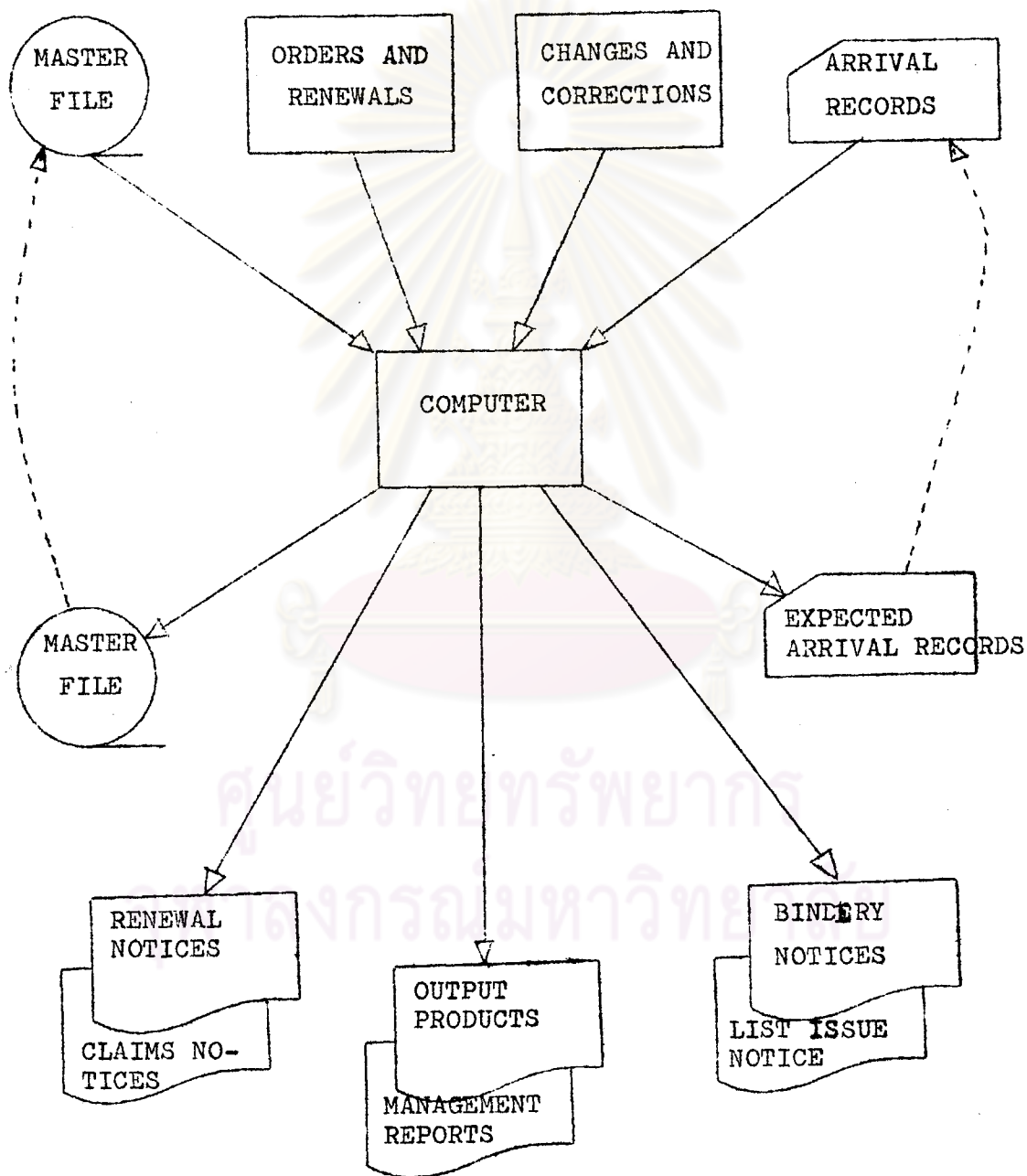


Figure 1: An overall schematic of the serials operations

A serials record system is relatively limited in terms of the number of files which it involves. One of them is the Master Serial Records File to which all data comes and from which all output is generated. A second file is usually required as part of the receiving function from which data in machine-readable form can be obtained for input, or at least a listing which can be used to control key-punching. Others are vendor data and funds files which are required as part of the accounting functions.³³

Master Serials Data Record

The record format of the Master Serials Data Record can be divided into six main parts: cataloging data, ordering data, receiving data, binding data, holdings data, and distribution data.³⁴

Cataloging data includes the standard cataloging data, as in any catalogs record. Name changes, alternative titles, and analytic entries for separately titled issues are included. A unique serial-identifier and a limited set of subject heading may be some parts of cataloging data. In addition, it may also be reasonable to include references to abstracting and indexing journals by which the serial is being covered, or is likely to be covered.

Ordering data includes renewal dates; names and addresses of publisher, society or association; code for vendor; code for

³³ Hayes & Becker, op. cit., p. 663.

³⁴ Ibid., pp. 664-5.

funds from which subscription are to be paid; costs; and references to associated publications.

Receiving data includes data on frequency of publication; on volume and issue numbering practice, on irregularities to be expected (such as delays, supplements, and multiple issues), check-in points, and claiming criteria. They are used to control the issuing of reentry cards or listings for control of the receiving operation and for initiating claiming.

Binding data includes style and color of binding, number of issues per binding volume, binding frequency, binding dates, and other special instructions for binding.

Holdings data includes all of the standard data on holdings, both bound volumes and separate issue, missing issues, wants, locations at which holdings are kept.

Distribution data includes the name and address of individuals, organizations, and locations to which issues are to be circulated. These data are used to produce distribution lists or SDI lists at the time of receipt of an issue.³⁵

Receiving File

The Receiving File is the set of records on printed lists used to control receiving operation itself and to provide for subsequent input to the computer concerning issues which have been

³⁵ Ibid., pp. 665-9.

received. Data that might be included in a receiving record are serials identification number, main entry, frequency, vendor number, shelving location, last issue received (volume, number and date of the issue), date received, issue expected (volume, number and date of the issue), and date received.³⁶

Vendor File

The file correlates the vendor code number with the vendor's name and address for printing of orders and claims notices. The vendor name and address is punched from the manual file. A code number must be provided for each vendor. Since the number of vendors is reasonably limited, these codes can be assigned to the list in alphabetic order by vendor name, with intervals sufficient to allow for interleaving of new dealers. The file will then be in alphabetical order as well as code number order. The Vendor File also keeps statistics of the vendor activities, such as the number of items handled by each dealer, and the average delivery time.³⁷

Fund File

The Fund File contains complete information on the status of each fund. As in the case of the Vendor File this file is

³⁶Ibid., pp. 669-70.

³⁷Ibid., pp. 564-6.

created from data in existing manual files. Fund code numbers must be assigned. The number of them is relatively small and therefore, as with the Vendor File, the codes can provide a specified order, alphabetically (by name) or any other desired. New orders initiate encumbrances on the appropriate fund. At the beginning of a new fiscal year, the total allotment to each fund must be entered and the previous years' balance must be adjusted. New funds may be entered as they are established. Fund reports consist of a full statement giving the present state of all funds and a list of fund nearing depletion.³⁸

Creating the data file

To build up the data file may consist of translating the information in a single file of cards into machine-readable form, or of merging and selecting appropriate information from several manual files into the new data file. In any event, the information must be transcribed into machine-readable form, and the keypunch is the most commonly available device. In order to put the input information in some form which is usable for the keyboarding operation, a worksheet may be used. It is a sheet, filled with squares, onto which the data is manually transcribed in block letters so that the typist or keyboard operator can then key the information. Another expedient way is to type worksheets which can be used by

³⁸Ibid., p. 566.

the input clerk for data entry.³⁹

The conversion might well be done within the library, using library staff to do keying, and using raw data directly from the library records, rather than worksheets.⁴⁰

Updating the data file

Entries in the holdings list for periodicals currently being received will be left "open." The open entries mean that the library holds all volumes and parts published to date. If these periodicals cease publication or change their titles, or the library may stop subscribing to them, the open entries will then have to be closed in order to reflect the changed nature of the library's holdings. The library will also have to subscribe to new journals and new open entries to be made in the list will be required.⁴¹

To update a periodical holdings list, most manual methods have to re-keyboard large sections of the entire list in order to include alternations and additions. But a computerized serials system only requires to keyboard the alternations and additions

^{39,40}Hillis L. Griffin, "Implementing the New System: Conversion, Training and Scheduling," Library Trends, 21 (April, 1973), 565-70.

⁴¹Kimber, op. cit., pp. 78-9.

together with instructions as to how they are to be added to the file.⁴²

As the sequence numbers are assigned to the file in the first place, sufficient numbers are left vacant to allow for subsequent insertions into the file. To update the data file, where a new record is to be added to the file, a sequence number is chosen for it which will place it in the correct position in the file. When an existing record is to be altered it is identified by means of its sequence number. The type of alternation is specified: whether it is to be deletion, addition, or replacement, and the section of the original record to be altered is indicated. The actual data which follows can either be the whole of the altered section or simply the information need to make the alternation, depending on the type of alternation and magnitude.⁴³

⁴²Ibid., p. 79.

⁴³Loc. cit.