

# Archivists and Bibliographical Control: A Librarian's Viewpoint<sup>1</sup>

By VERNER W. CLAPP

*Library of Congress*

I fully realize that it is not fair to expect archivists, whose business is so largely with the past, to be overly concerned with what is happening in the present; but it may not, however, wholly have escaped your attention that a revolution has been taking place in the formal education of librarians, and that the curricula of library schools during the past few years have been undergoing radical changes. Time was when a librarian was expected to be a bookman, with a wide acquaintance of books and authors, of languages and literature. His basic education was usually in the arts and his professional training a science. All this is changing. Librarians are now engineers, and no librarian worth his salt considers books as literature, but merely as the stuff (he calls them "materials" or "collections") which is to be subjected to engineering processes. His talk is not of authors, but of administration; he never mentions books but, instead, bibliographic control or organization. His speech and his writings are turgid with the vocabulary of what is called "management" and with the clichés of many applied arts and sciences, with words such as communication, mass media, channels, data utilization, scientific aids to learning, mobilization of thought, orientation, workshop, audio-visual, brightness ratios, lumens, sound-to-signal ratios, decibels, diameters, resolution, pH, alpha cellulose, residual thiosulfate, X-punch, random numbers, and modules. If you should go, these days, to a convention of librarians and look at the commercial exhibits, you will indeed see a number of books on display, but by far the larger number of the exhibits consist of mechanical devices of one sort or another — punched card mechanisms, duplicating devices, photographic applications in macro and micro facsimile, electronic styluses, mechanical book-charging devices of many kinds, laminators, bookmobiles, and trick bookstacks. Mechanisms have permeated practically every part of library work, almost — it would seem — to the exclusion

<sup>1</sup> Paper read at the annual meeting of the Society of American Archivists at Madison, Wisconsin, October 10, 1950.

of the books upon which the work is based. But I am confident that an efficient book-disposer will soon be on the market.

Archivists, I am led to understand, have allowed themselves to overlook many of the modern conveniences to which librarians have become accustomed, and I have been requested, together with my distinguished colleague, Vernon D. Tate, Director of Libraries at Massachusetts Institute of Technology, to bring some additional foot-candles to bear on your archival darkness.

All jesting aside, it is true that, in common with other human activities including housekeeping, library work is increasingly seeking the assistance of mechanisms, not merely with the objectives of simplifying or expediting the work or of reducing its costs, but also of improving its services in the sense of making them more useful to existing consumers, of extending their use to groups of consumers not yet served, and — especially — of keeping up with the consumers' expanding and diversifying requirements and with the multiplying and diversifying character of the materials on which library services are given. It is true that mechanisms have pervaded almost every aspect of library work, and threaten to be even still more pervasive. The important thing to remember, however, is that library work was always dependent upon mechanisms, if only those simplest mechanisms which were required for storing materials, for assigning locations in this storage space, and for finding them when needed. These primary operations are still basic to the bibliographic work performed in libraries, and since the operations of archival and of library collections share this same basis, it may be worth while to consider some of the mechanical aids to which librarians have been looking recently in the hope of improving their work.

The elements of library work consist in assembling records of human communication (typically printed publications; less typically, acoustic, pictorial and tactual records, and unpublished as well as published materials) which have potential usefulness to a particular community, and in supplying particular records from these collections in response to specific needs. Bibliographic techniques and mechanisms are employed in the creation and maintenance of such collections; but, for the present, we will restrict the discussion to those techniques and mechanisms which are used for supplying the records to the consumer. In recent discussions the word "selection" has been frequently employed to describe the group of operations which are involved here.

Because selection involves the material itself, the lists of catalogs

which record it, and the contents analysis which call it to the attention of an inquirer, I shall comment on developments under each of these heads, without attempting, for lack of time, to cover all, or even all important developments.

I need say little about microfilm. Equally with archivists, librarians use it to replace decaying originals or to reduce their bulk. We find it useful because it lends itself to cheap reproduction for the benefit of our users, and it permits us to acquire materials that would otherwise be wholly unprocurable or much more expensive. But we have never really liked its format, which is that of the scroll, and we have been experimenting with other forms of reduced facsimile — the transparency, the microcard, and microprint. The transparency has advantages over microfilm in that it can be filed flat, but by the same token it loses the ability to be continuously processed, as can film. Microcards and microprint can also be filed flat, and are, in addition, cheaper in edition lots than photographic prints. With all their advantages, however, all the reduced facsimile substitutes for material involve certain disadvantages — their use requires ancillary equipment which even at the best presents elements of inconvenience, bulk, and expense; it is less agreeable and convenient to use them than the originals; and it does not convey all the data contained in the originals, e.g. watermarks.

The reproduction of materials in reduced facsimile affects the selection process in other and sometimes unexpected ways. It is often simple, with microfilm, to make a record of a collection as a collection before its components are distributed. It is comparatively simple to file duplicate copies under several headings. With microcards the catalog entry and sometimes even an abstract can be placed on the same card with the reduced facsimile of the text which is described. On the other hand, the reduced facsimile methods definitely complicate the bibliographic process — by stimulating the production of separate registries of reduced facsimiles, by multiplying citations to a single work, and in other ways.

A principal use of reduced facsimile is the (comparatively) inexpensive extension of collections. Other mechanical methods, in assistance of or in substitution for interlibrary loan, are being tried. Where the interlibrary loan traffic warrants, as between Racine and Milwaukee, teletype has effected an improvement over telephone, just as does the telewriter in intramural installations. Where the traffic is still heavier, an application of television may be warranted. At Oak Ridge, where library users may for reasons of security not go freely from one installation to another, complete duplication of

library collections would seem to be a consequence. It is hoped to avoid the necessity for such duplication, however, by the use of telefacsimile equipment which will make it possible for a reader in one installation to consult the books in any other by means of televised photographic copies. Such a system, under the name of Ultra-fax — a marriage of television and microphotography, with hot solutions to speed the photographic processing — was shown in a public demonstration a couple of years ago to be capable of transmission and reproduction at a speed of something like a thousand pages a minute. The economics of the installation at Oak Ridge will be closely scrutinized, you may well believe, for they may hold important implications for the building of research collections, interlibrary relationships, and the development of decentralized library systems.

In the cataloging or primary listing of library materials the card catalog still reigns supreme in library work and is likely to do so for some time to come; and so, therefore, is its component, the catalog card. One of the most attractive features of the catalog card is its adaptability to use in different combinations. Its production can be centralized while its use can be wholly decentralized. Such use, however, requires easy multiplication of the cards, and many processes have been employed to effect this. As long ago as 1854 the Smithsonian Institution began to collect stereotype plates for separate catalog entries; these were used to print a catalog for the Library of Congress and were to have been used, in different combinations, to print the catalogs of other libraries. More recently addressograph plates and stencils, mimeograph stencils, fluid process masters, imprinted multilith stencils, and photographic transparencies have been used for similar purposes. At the Library of Congress we find that in the large operation of the Card Division, which sells some 25 million cards a year, original printing from letter-press, with replenishment of stock by photo-offset, is the most efficient method. However, in another operation (the preparation of the *Technical Information Pilot*) we type abstracts on 5 by 8 inch cards; we then print an edition of 3 by 5 inch catalog cards from these by reduced facsimile photo-offset; and we then print an abstracting journal by still further reduction of the cards.

As you know, numerous publications of a bibliographical character are now prepared by the technique of mounting individual entries in page arrangement, photographing these arrangements and printing by photo-offset. The entire 167-volume catalog of the Library of Congress was printed in this way by Edwards Brothers;

and the *Bibliography of Agriculture, Biological Abstracts*, and numerous publications of the Library of Congress are currently produced by this method. One of its great advantages is that once the page layout has been photographed the individual entries can be saved for later cumulations or other arrangements, thus saving typing, typesetting, and several stages of proof-reading. This is the very objective that was sought by Professor Jewett through the use of stereotype plates in 1854, and which is currently being achieved for the bibliographical publications of the H. W. Wilson Company through storage of linotype slugs.

It is but a step from this to the wholly mechanical preparation of printer's copy of bibliographic compilations. For example, the entries for an index may be punched, as they are made, into Hollerith cards. When the time comes for going to press, the sorting and printing machines will arrange the cards in the prescribed (alphabetic or other) order and print them off either directly, or by actuating a typewriter on which a greater variety of type-face and arrangement is available. This system also lends itself to interfiling of entries and the consequent preparation of cumulations, or of different arrangements, or of revisions, without completely reworking the data. We have published one book by this method and are planning others. In particular, it appears that a new edition of the *Union List of Serials* (greatly needed) is beyond the capacity of libraries to produce by the printing methods previously used. If, however, the data were to be kept on punched cards, the job of keeping it up to date and of preparing printer's copy from time to time would be reduced to mechanical handling, thus eliminating much of the editorial labor of the previous editions as well as the setting of type. Furthermore, these punched cards could be duplicated easily, could be exchanged with those of other countries, could be sorted out by subject, location of copies, place of publication, language, or date. Finally, we hope that from these cards listings and directories can be prepared which will facilitate the serials work of the participating libraries and reward cooperation in the work. All these things are advantages not provided by the older techniques.

I come now to contents analysis. The principal basic intellectual operations here are classification and indexing. Mechanical applications to the work have to date been directed not to the reduction of the intellectual tasks but to making more efficient use of the product, e.g.:

by providing more efficient storage for the selection data;

by reducing the mechanical work of preparation of the storage mechanism, as for example, the avoidance of making separate entries for each subject heading; by narrowing down the selection process through the use of multiple entries or selectors;

by greater speed in selection;

by improving the cumulativeness of the storage mechanism;

by increasing the speed and cheapness of supplying a copy of the material selected;

by facilitating the reproduction of the storage mechanism itself.

For example, with punched cards it is not necessary to make a separate card for each subject coded into them; maintenance in a particular order is unnecessary; the use of multiple selecting indicia will narrow the search down to the perhaps one card in the file which contains these indicia. With Hollerith cards and with the film used by the Department of Agriculture's Rapid Selector, duplication of the file may be easily and cheaply effected. With the Rapid Selector, too, it is possible to obtain a microfilm copy of the material selected as the end of the selection process. The great electronic computing machines offer promise of selecting from data at incredible speeds, and one author has calculated that if every page in every book in the Library of Congress were represented by an analytic recorded in one of these machines, the selection of the desired page would nevertheless require only a matter of minutes. But, as Ralph Shaw has pointed out, it would hardly be efficient to use one of these mighty engines to discover what a \$3,000 a year assistant knows instantly to be available in the *World Almanac*, nor would it be possible without a fabulous expenditure to provide one of these machines for the use of each of the persons who at any one time is making use of the Library's catalog.

Nevertheless, numerous projects of research are going on, in developing classification systems and subject headings, mechanical appliances that will use them, and the codes which will adapt the systems to each other. Lack of time prevents me from listing them. But on the campus of the University of California at Los Angeles the other day there was a ceremony dedicating the Bureau of Standards' new computing machine for which already there have been prepared some exercises in bilingual translation. It may be expected that these experiments will cast a great deal of light upon the verbal, grammatical, and syntactical equivalences and divergencies of languages — light which will be reflected upon the semasiological and selection problems of bibliography.

All the instances I have chosen have been drawn from library work, where materials typically occur in edition lots, and hardly touch the work of archivists who are concerned so principally with the unique, the record copy. Yet the operations of these two kinds of institutions are drawing closer together in several areas. The mimeographed research report, for example, which has superseded journal publication to so large an extent, is requiring some heroic efforts to control bibliographically on a library basis. It would be a pity if the same controls could not serve to manage the record copies of the same publications when they reach the archives. Photographs and maps furnish other instances of a similar situation. As the processes which are used for producing record copies become more and more nearly identical with those which are used for producing publications, the contents of archives and libraries will grow more and more to resemble each other, and we shall be forced, in the interest of efficiency, to share each other's bibliographic labors and product.

These remarks were to have been about the scientific control of information. They have given you no science, and little prospect of immediate great advances in control. Much of what I have said describes merely efforts to keep abreast, but advances have come and will continue to come from these very efforts. There are other current efforts, in the direction of cooperation, coordination, and redistribution of work in bibliographic activities which are having the same effect, but which I have not mentioned because I have limited these remarks to mention of mechanisms.

To conclude. In the bibliographical work of libraries we need analysis at various levels. We need macroscopic analysis, as of collections. We need intermediate analysis, as of books and periodical articles, by more or less general or specific subjects. We need microscopic analysis of the indivisible concepts suggested by particular words, names, and so forth. We need bibliographical mechanisms to store these analyses — mechanisms more capacious, more adaptable, more reproducible than those we have now. We need standards and procedures which will make generally available the bibliographic work which now is going on in thousands of centers and whose usefulness is restricted to those centers for want of proper mechanisms and organization. We need to reduce unnecessary duplication and overlapping, to increase coverage, and to lower the cost of bibliographical services. These are objectives. Progress toward them is slow, but is genuine.