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## Scientific Management in Cataloging

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SCIENTIFIC MANAGEMENT in cataloging and classification is no more and no less than the application of effective thinking to the solution of the business problems in this part of a library's work. What these problems are depends upon the scope of the activities covered by the phrase "cataloging and classification." To most readers such activities will be synonymous with the work of the catalog departments in the libraries with which they are most familiar. Whether or not the department is part of a larger "technical-processes" organization, whether or not it carries certain responsibilities, such as taking inventory, that in some libraries are assigned to other divisions, the principles of management are equally applicable.

Every department of a library has problems that require continuing study if the institution as a whole is to be operated on a business-like basis; and it is stating the obvious to say that every librarian has a social responsibility for operating his institution in such a way as to derive optimum results from its expenditures. In most research libraries the cost of cataloging and classification amounts to such a large part of the budget that it is of particular significance in a study of scientific management in libraries, and the person charged with direction of the cataloging department has a special obligation to be aware of trends affecting his field.

Cataloging has traditionally and necessarily been attractive to those librarians who are more interested in bibliography and bibliographical problems than in general library administration. The person who can deal with the former is logically held in higher esteem by his colleagues than the one concerned with the latter, and consequently is the more likely to become the head of a cataloging department. The result is a serious shortage of cataloging administrators who, beside possessing the technical competence necessary to hold the respect of the profes-

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sional members of their staff, have developed also the business sense required of the successful executive.

Nevertheless, catalogers probably have been aware of the benefits of scientific management for a longer period and to a greater extent than any other group of librarians; and to many librarians scientific management in the library has been synonymous with scientific management in the cataloging department. One of the earliest contributors to the literature of scientific management in libraries, Willard Austen,<sup>1</sup> wrote that "The work of . . . classifying and cataloging is peculiarly adapted to the application of standardizing and the functional division of labor." He pointed out that "The functional division of labor is peculiarly liable to be ignored in the work of this division, and we not infrequently encounter here a duplication of labor by two or more high-priced officials." C. C. Williamson,<sup>2</sup> in 1919, made a general plea for more attention to efficiency in library management, in which he stated that "Library technique [cataloging, classification, bibliography, etc.] is now relatively efficient." However, his general statement that "Today we may be efficient and tomorrow inefficient, if we do not keep pace with our opportunities" should have prevented the catalogers of 1919 from being self-satisfied.

In 1930 Donald Coney<sup>3</sup> saw the catalog department as the manufacturer of the library's product, through supplying the units of information that make up the catalog, and implied that the same principles of management are applicable here as in business. He pointed out that functionalization, which is one of the principles of scientific management, had been adopted very early in library work because "a group of distinguished and stalwart figures such as Melvil Dewey and C. A. Cutter saw the advantage of standard methods and moved to bring them about. As a result of this early standardization, a trained personnel was necessary to operate the modern library according to the best methods. Once there is a need of a trained personnel, functionalization is inevitable, if for no other reason than as a method of training the personnel."

This standardization of practices, of classification systems, of cataloging rules, and of the structure of catalogs contributed very considerably to defining the duties of that part of the library personnel engaged in cataloging activities, and set off this field for specific analysis from a managerial point of view. At the same time there obviously has been confusion between standardized results of the cataloging effort and uniform methods of getting those results in different libraries.

The confusion is responsible for many ill-conceived attempts to find the cost of "cataloging," as if cataloging were so standardized that its most minute specifications could be supplied. The same intelligent investigators would not attempt to find the cost of building "a house," on the assumption that this is a standardized commodity, having walls, a roof, doors, windows, and plumbing, but without consideration of its purposes, size, and the workmanship.

Perhaps the reason for Williamson's statement in 1919 that cataloging was relatively efficient was the frequent appearance in the professional journals over a period of almost a half century of reports on the cost of cataloging. These were surveyed by Felix Reichmann in the October 1953 issue of *Library Trends* and will be considered here only to the extent that they contribute to a study of management. Unfortunately their contribution is not very great. Although most examinations of cataloging costs have made catalogers and other librarians "management-conscious," few of them have shed light on the reasons that the expenditures were what they were found to be; few, if any, have resulted in measures that would lead to substantial savings. At least, reports of such results have not been found in the library press.

Many students of this problem have hoped to determine production standards through cost studies, and this indeed would be a contribution to management. Too much faith, however, has been placed in the comparability of statistics and cost figures from one library, whether in terms of money or time, with those of another of the same general type and size, without specific definitions and without consideration of the quality of the product. No study has been found that analyzed adequately the nature of the materials being cataloged, or attempted to evaluate the quality of the work done. Distinctions have been made between fiction and nonfiction, between new titles cataloged and titles recataloged, between monographs and serials, between titles covered by printed cards and those requiring original cataloging, but no piece of research is known that made all these differentiations.

Other important factors affecting costs that have not been given full consideration include the proportion of the titles cataloged representing books in foreign languages; the proportion of early imprints; the average number of subject headings and other secondary entries made; the limitation or lack of limitation placed on the time to be spent on establishing headings; the fullness of cataloging data included on the cards; and the number of titles of special types of material cataloged,

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such as maps, pamphlets and government documents if given special treatment, and children's books. Unless these factors are comparable in the libraries being studied, the statistics and cost figures will not be so, and production standards cannot be determined from them. If they are not comparable for the various catalogers within a given library, individual production or performance based upon production statistics will be unreliable.

This is not to say that cost studies do not supply an important contribution within a given institution, but only to emphasize that they need to be made only after broader aspects of management are considered, and to discourage the misuse of the results of such studies as have been reported. Lest this seem so obvious as not to require statement, one recent example of such misapplication will be cited. In connection with a job analysis and organization survey of a state library,<sup>4</sup> the American Library Association's *Post-War Standards for Public Libraries*<sup>5</sup> was quoted as estimating that forty-five minutes is adequate allowance for cataloging, accessioning, and preparing a new title for the shelves in a library of 300,000 volumes or less. The surveyors of the state library set about determining the workload of its catalogers by adding the total number of titles cataloged and recataloged, and then "The unit time factor of 45 minutes was applied to the total of the workloads . . . to obtain the total direct operating time necessary for the cataloging function. An additional allowance of 23 percent of direct operating time was made for leave and rest periods, and the total time required was divided by the scheduled work hours per person during the period to determine the full time personnel equivalent required." The method disregarded the findings that the cataloger spent part of her time in typing cards, in checking the Library of Congress catalog to ascertain whether printed cards were available, and in typing L.C. card orders; that "Working conditions . . . are a serious hindrance to the efficiency of the agency . . ."; and that "some employees performing cataloging and research work are frequently interrupted by library patrons seeking general information about use of the library or assistance in routine reference work." It also ignored the fact that the new job description proposed for the cataloger included the tasks of preparing secondary cards for the catalog, checking the Library of Congress catalog for available cards, and selecting materials for acquisition and exchange.

Perhaps the greatest contribution to the study of management in libraries has been made by catalogers in their many investigations of

professional and clerical activities. Before the term "job analysis" was a household expression among students of management, the catalogers were analyzing in minute detail the operations being performed by them or under their supervision. Thus they were studying "division of labor," which has been cited by some authorities<sup>6</sup> as the first principle of administration. As early as 1905 W. W. Bishop<sup>7</sup> pointed out that "copyists may be employed at low salaries to reproduce the cataloger's slip. . . . Much more expensive time is consumed when catalogers of experience and training write or print all needed cards, or when cards are written from the marked title pages of the books, as is done in some places." In 1925 the Committee on the Cost of Cataloging of the A.L.A. Catalog Section reported that the so-called "Cataloging Test" of 1913-14 was in part to "study how the work might be arranged so as to be made in some degree less mechanical to those that are capable of more or less independent handling of literary material for the purpose of preparing it for use." This committee also reported that "Today the library must emulate the business organization in employing the cheapest grade of labor where it can be used and using its highest priced labor only for strictly professional work."<sup>8</sup> Laurence J. Kipp and Annie T. Thomas<sup>9</sup> have stated that as early as 1925 typists were being used at Harvard to prepare author cards after the cataloger had indicated the forms of entry to be employed, with certain other details. In the first edition of her *Introduction to Cataloging and the Classification of Books*, Margaret Mann<sup>10</sup> stressed the importance of dividing the operations of the cataloging department between professional and clerical duties in order to relieve the professional cataloger of all unnecessary routines, and in the same year Ruth Wallace<sup>11</sup> pointed out that "Each member of the staff should be doing the most advanced work for which she is equipped" and that "As many typists and pages should be employed as can be provided with work in a given department." Susan G. Akers<sup>12</sup> in 1935 made a detailed study of the activities being performed by professional and clerical workers in the cataloging departments of a group of typical libraries, and of the way a group of representative catalogers thought they should be divided between professional and clerical workers.

Donald Coney, H. H. Henkle, and G. F. Purdy suggest that management could be improved by assigning certain duties in the cataloging process to a third category of workers. They state that "Searching for authorities by which to establish the proper form of the author's name under which the item is to be entered . . . can be performed by

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sub-professional workers of intelligence and experience.”<sup>13</sup> The survey of personnel in catalog departments in public libraries<sup>14</sup> that was undertaken in 1949 by a Special Committee on Personnel of the A.L.A. Division of Cataloging and Classification took account of this third group of workers in its examination of professional and nonprofessional duties in catalog departments in public libraries having 100,000 or more volumes. It treated nonprofessional duties as those performed by subprofessional and clerical workers.

The study in question was based upon the cataloging and classification section of the “Descriptive List of Professional and Nonprofessional Duties in Libraries,” prepared in a preliminary draft in 1948 by a special subcommittee of the A.L.A. Board on Personnel Administration. The duties listed are fewer and hence less specific than those compiled by Miss Akers, but indicate well enough the present state of affairs in their area of the division of labor. In the list of professional activities there are only two, i.e., “establishing cataloging and classification policies” and “participating in cooperative cataloging,” that are performed exclusively by professional catalogers. Among the nonprofessional duties there are none that are not actually being discharged by professional catalogers. Whereas 95 per cent of the professional duties are carried out by professional assistants, it is found that when duplication of classes performing the duties is considered, only 89 per cent of the total checks represent performance by professional people, 8 per cent represent performance by subprofessional, and 3 per cent by clerical workers. Similar figures for the nonprofessional duties indicate that only 64 per cent are carried by nonprofessional assistants; and when duplication of classes performing the operations is considered, “the percentage of duties performed by nonprofessionals is only 55 per cent, of which 20 per cent are subprofessional and 35 per cent clerical, with the professionals performing 45 per cent.”<sup>15</sup>

Thus despite the fact that many studies have been made on the division of labor between professional and nonprofessional duties in cataloging departments, full advantage has not yet been taken of the results. Jerrold Orne reported that cataloging costs were cut in one library, with increased salaries being paid to all personnel, simply by making better use of clerical help and accepting uncritically the information on Library of Congress cards. “Most catalogers,” he says, “are intrigued by proposals to limit them to purely professional tasks, and they welcome the help of subprofessional and clerical workers who can do many of the operations performed by professionals in smaller

units.”<sup>16</sup> This substantiates the earlier statement of the head cataloger of a university library who said in 1941 that “It is usually an economy to turn over checking of L.C. cards to a clerical or junior cataloger and allow them to pass through unchallenged.”<sup>17</sup> The same idea is reported by Watson O’D. Pierce, who received the following comment from one member of a catalog department staff while he was studying work measurement as a part of the Public Library Inquiry:

How much so-called subject cataloging and classification nowadays is actually subject cataloging and classification. It is true Dewey numbers have to be modified and subject headings adjusted to fit local needs. Still there is much copying. With the L.C. Catalog and the L.C. and Wilson cards on hand the original brain work has been done. . . . To acknowledge these facts might be disconcerting—but from a professional point of view much may be gained by calling a spade a spade in greater streamlining and in release of professional ability for other work. It might in fact save the library (and tax-payer) money and would be more inspiring to the professional worker to change its variations to conform to L.C. or accepted practice rather than to maintain a professional staff performing copy work half the time.<sup>18</sup>

Patently, good management requires that the best use be made of each person’s ability. In the catalog department this means not only that professional assistants should not be permitted to do tasks of which subprofessional or clerical workers are capable, but also that the organization of the professional work should be based upon the ability or potential ability of the personnel. L. R. Wilson and Maurice Tauber<sup>19</sup> list four methods of organization: (1) by process, i.e., accessioning, author cataloging, subject cataloging, classifying; (2) by subject or subject division; (3) by language; (4) by form or type of material, such as serials, documents, pamphlets, and theses. According to these authors “division by process makes for economy; by subject, for ‘scholarly’ classification and subject-cataloging.” On the other hand, surveyors of the Indiana University Library in 1940 sent questionnaires to all university libraries using the Library of Congress Classification, and on the basis of fifty-three replies concluded that “it is apparent that for speed and low cost, a combination of classifying with cataloging is regarded as an appropriate type of organization. Another value in this organization lies in the familiarity of many catalogers with the use of the classification schedule. As a result, a library is less likely to be in the awkward position of not being able to maintain a flow of classifying work. . . .”<sup>20</sup>

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Similar differences of opinion are reflected in a "Symposium on the Division of Professional Activities in the Catalog Department."<sup>21</sup> True efficiency requires that all of the factors affecting both quantity and quality of the work be taken into consideration. In this case these factors include linguistic and subject knowledge on the part of the personnel, the need for such knowledge in the cataloging of a given library, the disadvantage of unnecessary handling of a given volume in the cataloging process (which may be related to the physical layout of the working quarters), the merit of specialization on the part of the individual worker, the advantage of having the most flexible staff, and—by no means the least important—the interest of the staff.

In evaluating the "Cataloging Test" of 1913-14, A. G. S. Josephson<sup>22</sup> found that "the possibility of organizing the work in the individual library so as to utilize to a larger extent than is now the case the special interests and the special knowledge of the individual" stood out as one of the most important ideas resulting from the test. Referring to this situation, Anna M. Monrad wrote: "The discovery or development of unusual ability in special fields of knowledge or in technical ability of individual members of the staff can easily make an existent organization stupid and wasteful."<sup>21</sup> And Paul Howard's conclusion for library organization in general is applicable: "Often it becomes advisable to fit the organization to the personnel rather than the personnel to the organization."<sup>6</sup>

From the foregoing it can be concluded that scientific management in cataloging and classification must be studied in relation to a given situation. The administrator cannot do better than apply the elementary advice of the Job Methods Training Program which was publicized by the government's War Manpower Commission.<sup>23</sup> This the Commission called "a practical plan to help you produce greater quantities of quality products in less time, by making the best use of the manpower, machines and materials . . . available." Step I reads, "Break down the job." In the catalog department this would involve the preparation of a very detailed manual of procedure, an organization chart, and a flow chart.

Step II reads, "Question every detail" and advises the use of the ensuing types of questions: "Why is it necessary? What is its purpose? Where should it be done? When should it be done? Who is best qualified to do it? How is the 'best way' to do it?" Applied to cataloging and classification, this would lead to the formulation of objectives in



regard to the catalog and the classification. Questions of who uses the catalog and for what purposes and of potential use would be considered. The necessity for local adaptations and the maintenance of special files and catalogs would be re-evaluated. The over-all organization lines of authority and responsibility, amount and kind of revision, kinds of statistics, layout of the department, equipment, and details of housekeeping would be questioned. "Who is best qualified to do it?" should be reworded to "Can anyone less qualified do it?"

Ralph R. Shaw<sup>24</sup> makes a thought-provoking suggestion to be borne in mind when considering the amount and kind of revision that is necessary for a given operation. He proposes the establishment of qualiquants—qualitative quantitative standards—which result in setting an objective level of quality for a cataloging reviser's work. If a cataloger meets that level of quality he should be paid the same rate as the reviser and the latter should be eliminated.

Step III, "Develop the new method," will result in rewriting the manual of procedure because there always will be some details that can be eliminated or combined or simplified, or some operations that can be rearranged in better sequence. Step IV, "Apply the new method," hardly needs mentioning.

Many cataloging departments already have detailed manuals of procedure—in this they have been ahead of their colleagues in other departments—and are aware of the benefits that develop from the mere writing down of what is to be done, by whom, and how. It is not an exaggeration to say that it is administratively irresponsible not to have such a handbook, regardless of the size of the department. Successors as well as co-workers need to have the policies and practices in writing. But to be useful, manuals must be subject to continuous revision. J. A. Humphry<sup>25</sup> has reported that "No established manual of practice should be considered applicable for all time; the search for simplification and elimination of unnecessary operations is a never ending process."

Library literature has included more reports regarding the search for simplification and elimination of unnecessary operations than can be summarized or even mentioned here, but a few of the more significant ones are listed at the end of this paper. Each study explains a procedure or specific method in use that should be equally successful in some other library, if not in all libraries. Arnold H. Trotier<sup>26</sup> has said, ". . . neither the cataloger nor the administrator is so much concerned about theoretical economies as about those economies which

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have proved effective in the course of actual library practice." Application of the appropriate devices, whether they refer to over-all organization, flow of work, simplification of the cataloging or classification themselves, the duplication of catalog cards, or some detailed operation in the physical processing of materials for the library's collections, such as the use of an electrical gluing machine, will go far in improving management and will suggest other improvements. The following word of caution is in order for the zealous cataloging administrator, however: "*Economy* in cataloging is economy that actually saves expense in money or time on the library budget as a whole, and does not merely save this expense in the catalog department to transfer it to another department or to some future time."<sup>27</sup>

The most extensive management study of an individual cataloging establishment found is the recent survey made at the New York Public Library by Cresap, McCormick, and Paget, a firm of management engineers. R. E. Kingery<sup>28</sup> has described the scope and objectives of the survey and discussed some of its findings. The specific methods followed demonstrate many of the arguments advanced above. The study was based upon personal conferences with the staff, job analyses, charts, manuals, and reports previously made, visits to other libraries, and review of library surveys. Each step in the procedures examined was considered to see whether it was necessary at all, and whether it was being performed by the right person and at the right time in the process. Time tests were run on a selective basis. Investigations were made of the cost of printing catalog cards, of reproducing them by offset, and of purchasing Library of Congress cards and preparing them for the N.Y.P.L. catalogs. There also was a detailed study of the physical aspects of the Preparation Division to determine

The division layout and its effects on administration.

The flow space allotted each section and its adequacy for the type of work performed and the number of people involved.

The arrangement of furniture and equipment within each area of the division.

The condition, use, and adequacy of each piece of furniture and equipment.<sup>29</sup>

The number, size, and location of all of the catalogs that were being maintained were examined, and an analysis was made of the cataloging done over twelve months, including new, "adds," and recataloged titles, and books, documents, films, serials, and maps.

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The surveyors observed that "The concept of repetitive operation which is the keynote of economical mass production in business is strikingly absent in the Library because each new piece prepared may present new or unusual problems to the searcher, the cataloger, the filer and other assistants."<sup>30</sup> Nevertheless, they isolated three principal problems:

First—is new work handled in a timely manner so that materials are made accessible within a minimum of elapsed time after receipt?

Second—are cataloging decisions sufficient to clearly identify reference holdings for all classes of readers?

Third—is the cost per unit processed reasonable?<sup>31</sup>

Within this framework the surveyors made their detailed study, which resulted in seventy-five specific recommendations that were developed jointly with the management of the Preparation Division. These were designed to meet four objectives: (1) to simplify and clarify the organization structure, (2) to provide stronger supervision and control, (3) to provide greater flexibility and assure better utilization of each member's highest skills, and (4) to improve office location, layout, and furnishings in order to facilitate supervision and provide a more comfortable working environment. One outstanding feature of this survey was the emphasis placed on staff participation in the consideration of the report and in the acceptance and installation of most of the recommendations.<sup>28</sup>

Every student of scientific management would agree with Shaw<sup>24</sup> that "people are at least as important as systems" and recognize that the best schemes of operation require working conditions enabling a staff to enjoy its tasks and take pride in them. The conditions in question concern pay, hours, vacations, privileges, and the like, which are of the same interest to catalogers as to the rest of a library staff, but they also include such essentials as adequate lighting; light-weight book trucks, in sufficient numbers to reduce physical exertion to a minimum; adequate working space; typewriters in good repair, kept so by experts rather than by catalogers; comfortable chairs and other furnishings and supplies designed for the uses to be made of them.

People need more than the materialistic things mentioned above. They need incentives, credit when credit is due, and an opportunity to participate in the decisions that affect them. A basic incentive for a young cataloger is to be aware of the fact that he will be able to work independently, without revision, when his work approaches

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a certain degree of maturity and accuracy. Catalogers seldom benefit from incentives that are derived from personal contact with satisfied users of the catalog, and efforts must be made to compensate for this. However, the fact that catalogers and classifiers are professional workers, generally with more to offer than their specific assignments require, makes it relatively easy for an administrator to let them participate in decisions, whether touching their own situations or the institution's service. An entire article could be written on the personal element in scientific management in cataloging and classification. Suffice it to say here that that element is probably the most important one of all.

## *References*

1. Austen, Willard: Efficiency in College and University Library Work. *Library Journal*, 36:566-569, Nov. 1911.
2. Williamson, C. C.: Efficiency in Library Management. *Library Journal*, 44: 67-77, Feb. 1919.
3. Coney, Donald: Scientific Management and University Libraries. In Schwenning, G. T., ed.: *Management Problems*. (University of North Carolina Social Study Series) Chapel Hill, University of North Carolina Press, 1930, pp. 168-198.
4. Oklahoma. State Employment Service: *Job Analysis and Organization Survey of the Oklahoma State Library*. Oklahoma City, 1952.
5. American Library Association. Committee on Post-War Planning: *Post-War Standards for Public Libraries*. (Planning for Libraries No. 1) Chicago, The Association, 1943, pp. 83-92.
6. Howard, Paul: The Functions of Library Management. *Library Quarterly*, 10:313-349, July 1940.
7. Bishop, W. W.: Some Considerations on the Cost of Cataloging. *Library Journal*, 30:10-14, Jan. 1905.
8. American Library Association. Catalog Section: Plan for an Investigation into and Report on the Cost of Cataloging. *A.L.A. Bulletin*, 19:278-286, July 1925.
9. Kipp, L. J., and Thomas, Annie T.: The Creation of a Cataloguing Economy. *Harvard Library Bulletin*, 5:112-116, Winter 1951.
10. Mann, Margaret: *Introduction to Cataloging and the Classification of Books*. Chicago, American Library Association, 1930, pp. 326-327.
11. Wallace, Ruth: Cost of Cataloging and Recataloging and How It May Be Reduced. *Library Journal*, 55:899-902, Nov. 15, 1930.
12. Akers, Susan G.: The Relation of the Professional and Clerical Division of Cataloging Activities to Cataloging Courses. *Library Quarterly*, 5:101-136, Jan. 1935.
13. Coney, Donald, et al.: *Report of a Survey of the Indiana University Library*. Chicago, American Library Association, 1940, p. 94.

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14. American Library Association. Division of Cataloging and Classification. Special Committee on Personnel: Personnel in Catalog Departments in Public Libraries. *Journal of Cataloging and Classification*, 8:no. 2, June 1952.

15. *Ibid.*, p. 65.

16. Orne, Jerrold: We have Cut Our Cataloging Costs! *Library Journal*, 73:1475-1478+, Oct. 15, 1948.

17. Clark, Elizabeth D.: Economies in Cataloging. *Missouri Library Association Quarterly*, 2:29-32+, 50-54+; June, Sept. 1941.

18. Pierce, W. O'D.: *Work Measurement in Public Libraries*. (Mimeographed) New York, Social Science Research Council, 1949, p. 190.

19. Wilson, L. R., and Tauber, M. F.: *The University Library; Its Organization, Administration, and Functions*. (University of Chicago Studies in Library Science) Chicago, University of Chicago Press, 1945, p. 166.

20. Coney, *op. cit.*, ref. 13, p. 93.

21. Symposium on the Division of Professional Activities in the Catalog Department. In American Library Association. Catalog Section: *Catalogers' and Classifiers' Yearbook* No. 5. Chicago, The Association, 1936, pp. 36-44.

22. Josephson, A. G. S.: The Cataloging Test; Results and Outlook. *Library Journal*, 41:654-657, Sept. 1916.

23. Gates, Frances C.: Job Methods Training in Libraries. *Wilson Library Bulletin*, 18:30-33, Sept. 1943.

24. Shaw, R. R.: Scientific Management in the Library. *Wilson Library Bulletin*, 21:349-352+, Jan. 1947.

25. Humphry, J. A.: Pratt Reshapes its Processing. *Library Journal*, 73:1345-1350+, Oct. 1, 1948.

26. Trotier, A. H.: Economies in the Cataloging of Continuations. In American Library Association. Catalog Section: *Catalogers' and Classifiers' Yearbook* No. 4. Chicago, The Association, 1934, pp. 29-38.

27. Mudge, Isadore G.: Present-Day Economies in Cataloging. In American Library Association, *op. cit.*, ref. 26, pp. 9-23.

28. Kingery, R. E.: A Management Engineering Look at Cataloging. *College and Research Libraries*, 14:52-56, Jan. 1953.

29. Cresap, McCormick, and Paget: *The New York Public Library; Survey of Preparation Procedures, Reference Department*. New York, 1951, Appendix C-1.

30. *Ibid.*, p. 1-1.

31. *Ibid.*, p. 2-1.

ADDITIONAL REFERENCES

Colburn, E. B.: The Value to the Modern Library of a Technical Services Department. *College and Research Libraries*, 11:47-53, Jan. 1950.

Gaunt, Rezia: A Low Cost Cataloging System in Action. *Journal of Cataloging and Classification*, 7:6-11, Winter 1951.

Hardkopf, Jewel C.: *An Application of Methods and Motion Techniques in Preparing Books in the New York Public Library*. Unpublished M.S. Thesis, Columbia University School of Library Service, 1949.

Hiss, Sophie K.: Economies in Cataloging. In American Library Association. Catalog Section: *Catalogers' and Classifiers' Yearbook* No. 4. Chicago, The Association, 1934, pp. 39-49.

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Jones, Perrie: A Public Library Cuts Cataloging Costs. *Library Journal*, 68: 63-65, Jan. 15, 1943.

Meyer, Margaret R.: Self-Survey at Russell Sage College Library. *College and Research Libraries*, 6:17-19, Dec. 1944.

St. John, F. R.: Management Improvements in Libraries. *College and Research Libraries*, 14:174-177, April 1953.

Shachtman, Bella E.: Simplification Pays Off. *Library Journal*, 77:1254-1258, August 1952.

Thompson, C. S.: The Exhibit of Labor-Saving Devices. *Library Journal*, 39: 512-520, July 1914.

Wright, W. E.: Some Aspects of Technical Processes. *Library Trends*, 1:73-82, July 1952.