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Scientific Management in

Research Libraries

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To JUDGE FROM THE information found in library
literature, the application of scientific management to research li-
braries has been scattered, uncoordinated, and in many instances has
represented an unconscious acceptance of management principles.
Most articles useful to a study of this topic treat only one small aspect
of it, or indeed contain no more than inadvertent comments upon it.
There are, however, four items of great usefulness. Because these are
basic, and available to librarians, they help to cast the form of the
present study. Two are by Donald Coney, the first [1] having been an
attempt in 1930 to show the application of management theory to
research libraries, and the second [2] a recent factual study of manage-
ment practices in research libraries. Different though they are, they
offer an excellent summary of the effect of management points of
view and practices in research libraries, from the tentative application
of theory in 1930 to the rather widespread utilization of 1952.

An article by Paul Howard,[3] perhaps the most basic treatment of
this topic, was published in 1940. It is a thorough academic explora-
tion of the functions of management. In a fourth article,[4] Ralph Shaw
has stated the position of a librarian who has consciously adopted
management practices and has had long experience with them. His
description of the operation of management procedures in a library
is the most graphic article now available.

The present attempt, then, rests upon the theory and application
expressed in the articles by Coney, Howard, and Shaw. And, since
other articles in this issue of *Library Trends* carry reports of specific
applications of management techniques, the present one aims to offer
a large-scale review. It tries to present evidence of the employment
of the techniques of scientific management during and even before

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the 1920's, to indicate how they came to be introduced, and to provide specific examples of adoption in research libraries. The influence of such applications upon the dollar expenditures, the programs, and the personnel of these libraries are not, at this point, measurable, but effort is made to indicate some probable effects.

This statement leaves to others the task of defining precisely the scope and the elements of scientific management. It adopts Coney's description of the field as "generally identified with the last four decades, beginning with F. W. Taylor and time-and-motion study and ending—for the moment—with 'operations research.' Management is a broad area with a vague configuration. . . . Information at hand shows that management in college and university libraries gathers around the focuses of personnel, work measurement, costs, machines, and plant. 'Organization' [is] often considered a part of management. . . ." [2]

A complete list of the observable phenomena that characterize the application of scientific management to research libraries would be lengthy. It may suffice here to point to a few. In any library where the principles of scientific management have been applied in significant degree, the following phenomena will be present:

1. Attempts will have been made to determine standards of performance, whether of books ordered, cataloged, or circulated, or cards typed or filed. Specific operations will have been timed, and staff and individual averages arrived at. Standards may have been established through elaborate time and motion studies or through simple means, but such determination will be an accepted role of administration.

2. Partly as a preface to the determination of standards, and partly as a result of it, the work of each department of the library will have been clearly defined. This facilitates the measuring of accomplishment, places responsibility for it, and immediately affects the hiring and assigning of employees. Thus, the tasks of professional catalogers will be defined—and no doubt separated from those of order clerks, typists, and reference workers, although the process need not, of course, preclude the delegation of reference duties, for example, to a cataloger.

3. Such approaches to library work require concerted planning, and it is observable that the closer a library administration gets to the viewpoint of scientific management, the more important planning becomes, and the more clearly it is separated from the execution of

policy. One or more planning groups are set up and meet with the
chief librarian to define and measure achievement. Assistants—often
with staff rather than line assignments—gather data for the consider-
ation of such groups.

4. Personnel policies are codified as rule-of-thumb measurements
are replaced by more definite standards, and personnel work is central-
ized in one office. The staff of that office grows rapidly—at least to
a point—and as rapidly assumes greater status.

Now some of these phenomena might well have appeared in our
large and complicated twentieth-century libraries if scientific man-
agement had never been heard of. Since, taken together, they form
a pattern consonant with the theory of scientific management, we shall
assume that they result from the adoption or adaptation of that theory.
The manner and extent of that adoption or adaptation now will be
explored.

Howard has cited evidence from library literature of early ap-
proaches to a management point of view. The first appears late in
the nineteenth century in statements urging upon librarians a business-
like attitude to library costs. Two episodes in library history are here
added to Howard's account, because they so clearly indicate the
gradual development toward a point of view in accord with scien-
tific management.

Issues of the *Library Journal* in 1892 carry a series of communica-
tions from C. C. Soule, a trustee of the Brookline, Massachusetts,
Public Library, concerning the management of the Boston Public Li-
brary, then being administered by the Board of Trustees rather than
by a librarian.[5] Soule's comments upon the duties of a library execu-
tive, and upon the relation of that officer to technical matters, to his
board, and to the public, and his suggestions upon the proper method
of planning a building suited to a library program, are still biting,
sensible, and fresh. He implies that such a consistent group of theories
had been developed "during the last quarter of a century . . . [by]
earnest, enthusiastic, and practical men, who believe the library to
be one of the greatest factors in modern civilization."[5] Whether or
not Soule derived his ideas from librarians, it is clear that by 1892
librarians had been treated to an exhibition of practicality, analysis,
and insight such as later scientific managers might envy.

There are, until the 1920's, few additional comments from or about
research libraries that stand the test of time and reveal the point of
view of management. Public librarians were more vocal and presumably

more active, and, of course, affected the thinking of research librarians. From 1911 to 1913 the Committee on Library Administration of the American Library Association undertook—at the insistence of Arthur E. Bostwick of St. Louis, Missouri—a survey of library procedures. Bostwick's approach was interesting. He stated, "The scientific position that the first thing to do, in making an investigation, is to find out the facts, has only recently been taken in work of this kind. . . . It is now generally recognized that we must have a Survey—an ascertainment and plain statement of the facts as they are—as a preliminary to action or even to discussion." [6]

Measuring the facts turned out to be difficult, because they were neither simple nor uniform; and translation of the results seemed hopeless.[7] Nevertheless, a first conscious attempt had been made— during the same years that F. W. Taylor's views were gaining wide publicity, it may be noted—to apply the methods of scientific management to libraries. Clearly, the task was to adapt such methods, rather than to apply them directly, to library problems.

The necessary adaptation of course was slow. To judge from the paucity of material in library literature, it was delayed especially in research libraries, perhaps because the tradition of scholarship and gentlemanliness often excluded ideas originating in industry or business. But the lack of literature on the subject may be somewhat deceptive. The tradition of the scholar and the gentleman produced great libraries; it also produced at least a few early applications of management methods.

Definite contributions had been made before 1930 by management experts—whether or not they knew themselves as that. One of the most striking examples is the work of T. F. Currier, assistant librarian at Harvard in charge of cataloging from 1902 to 1940. Since Currier published sparingly in the library field and worked almost exclusively with his colleagues at Harvard, his contributions have not been fully appreciated. In a paper read in 1918.[8] he speaks of cost reductions "resulting from the application of some of the essentials of efficient management." He notes the necessity of "formulating correct ideals of work, care in selecting and training assistants, correct supervision and flexibility of organization." He advises that, "We must study carefully the cost of production, take advantage of every method that leads to economy, prune away with ruthlessness each process the value of which we cannot prove." Economy, he concludes, will be achieved "by building up a habit of efficiency and a common sense view of

relativity in the importance of work. This can be attained best by raising the tone of the catalog staff through careful selection and training of assistants, by formulating the ideals and aims of our work, by training our supervisors in the principles of management and by promoting flexibility of organization within and between departments."

As a pioneer management expert in his field Currier contributed to Harvard a cataloging system which has consistently produced results at lower unit costs than have prevailed in most large research libraries. He sharply differentiated between professional and clerical duties, setting up a typing section and a searching section [9] which operate efficiently today. His "common sense view in the relativity in the importance of work" led him to policies of simplified and selective cataloging which are still largely valid. At one point Currier and his colleagues made a detailed study of the use of the catalog, discovered areas where subject cards were necessary and where they were dispensable, and formulated rules which are, with minor modifications, still applied at Harvard.[10]

Thus Currier, in the decade before 1925, had based a program upon analysis of work procedures, careful selection and training of personnel, determination of unit costs, and relative importance of each procedure to the program of his institution. Certainly, however, Currier was no doctrinaire management expert. So far as can be determined, he was reacting pragmatically to the problems created by rapid growth of a great library. This might indicate—and perhaps many other examples would testify similarly—that the principles of scientific management are not eclectic, nor need their application be doctrinaire.

It is not easy to move from the specific to the general and to discover how and why management techniques were generally introduced into research libraries. However, such explanation is urgent if the importance of management is to be evaluated, and some suggestions are offered here.

In part, the ideas which characterize the concept of management have seeped into libraries from business and scientific developments. As early as 1887 the librarian of the St. Louis Public Library maintained that "the duties of a chief executive of a library differ in no essential from those of a manager of a stock company carrying on a commercial enterprise." [11]

The effect of scientific and technical developments has been more

recent, but may be more significant. Microphotography, the recording of data on punched cards, and the measuring of intelligence and aptitudes, for example, have brought scientific techniques into research libraries. In addition, the tremendous growth in the literature of the sciences has thrown new demands upon libraries. As one scientist, J. D. Bernal, has said of libraries: "We have come to realize that the unity and complexity of science has grown to such a degree that the library and information service has become a key to conscious progress along the whole front of advancing knowledge. For it to be effective . . . library service should change from what might be called a negative to a positive activity. . . . The modern library should be a distributor and organizer of knowledge." [12] Now, management of scientific literature develops, almost inevitably, in the pattern of scientific management. It is significant that the most conscious and deliberate attempt to use the principles of scientific management in research libraries has occurred in the Department of Agriculture Library, which operates such a "positive" program as Bernal has called for.

Management practices also have been adopted pragmatically as collections in all fields have grown and as demands for services have increased. Currier typified the realistic attitude when he stated, of one cataloging practice, that, "it is a bit illogical, but it is practical." [10] That statement aptly describes many innovations in research libraries. Pragmatic reactions to burgeoning problems are responsible for such departures as the New England Deposit Library, the Midwest Inter-Library Center, the series of regional bibliographical centers, and the various undergraduate libraries. These developments involve more than management theory, of course, but each such novelty has included the application of management dicta: detailed consideration of the program presented; measurement—so far as possible—of various alternatives to meet that program; planning to eliminate waste; and use of mechanical tools wherever they can lower unit costs.

In some instances librarians may have been less responsible for the adoption of management practices than the administrators above them. Centralized personnel work and purchasing and accounting have, for example, been introduced into many universities by management experts. Inevitably, these men have forced libraries to adopt some management usage, though sometimes belatedly.

Pressure from the top to introduce management practices has been felt acutely in federal libraries. As a consequence, the large Washington libraries have often provided pilot demonstrations. The Library

of Congress, because of its size and its relation to the government, has consciously developed many management applications, particularly since World War II.[13] Likewise, the Department of Agriculture Library has sought in recent years to meet its large national obligations by continuous emphasis upon such procedures.[4]

Scientific management, then, has been introduced into libraries because business methods have been adopted, technical developments have brought with them the scientific point of view, librarians have reacted pragmatically to the pressures of increased collections and for augmented services, and administrators in universities and in government—particularly the latter—have forced librarians to adopt modern methods. Some of the methods described by Coney and some of the techniques revealed in the table of contents of this journal are now found in every research library. Points of view comporting with management may not dominate, but they certainly influence, the thinking and action of every library administrator. It is impossible to go further in estimating the extent to which scientific management is now practiced in research libraries. A study of the problem, based upon a check list of library practices, might provide valuable data for further work in the field.

Just as there is little precise information on the extent of the practice of scientific management in research libraries, so is there scant data as to the effect of such methods upon the expenditure of dollars. In a few instances exact costs and exact savings can be measured. The report on the photocharger experiment in *The Use of Photography for Clerical Routines* [14] is an example of such measurement. Studies of cataloging costs are baffling, but at Harvard—and no doubt in other research libraries—the application of management practices over a period of years has undoubtedly saved hundreds of thousands of dollars.

In any study of dollar costs it must be borne in mind that they are so closely related both to methods of management and to program development that, even in a limited operation, it is difficult to ascertain the exact share of either. Demands upon research libraries have multiplied during the same period that practices of scientific management have been adopted. Dollar costs are therefore deceptive and usually meaningless. At Harvard, for example, the library budget has been expanded to care for the operation of the Lamont Library for undergraduates. That library is an example of a building planned with extreme care to fit a program of instruction, to augment other library

resources, and to be economical in operation. The physical arrange-
ment of the building, the simplified cataloging, and the self-service
features are widely regarded as models. If, as is here contended, the
practices of scientific management contributed to the efficient plan-
ning of that building, their value must be measured subjectively rather
than in dollars. Most other developments in libraries are equally
difficult to evaluate in terms of money.

It is, of course, true that the management operations which save
money are more apt to become known than those which prove expen-
sive. It is even more likely that the cost of some operations will be
hidden, and that only partial results will be divulged. Practices of
scientific management are not cheap to apply, and they are easy to
misapply. It is remembered at Harvard that an attempt in the late
1930's to draw conclusions from a time and motion study at the cir-
culation desk of the Widener Library proved worthless, perhaps be-
cause of the rigid application of gauging devices to a situation too
complex to be so measured.

Wherever scientific management is practiced it requires one or
more persons trained in its application, investment of a great deal of
time in planning, retraining of the staff, and often modifications of
physical arrangements and purchase of new equipment. The attendant
costs, and they are frequently heavy, may be met by direct savings;
more frequently, perhaps, they can be justified only if they contribute
significantly to the program of the library.

The problem of money costs is closely related to that of efficiency,
if not identical with it. Dwight Waldo, in his *Administrative State,* a
detached, sometimes ironic, study of governmental management, sum-
marized one attitude toward the cult of the "efficient." ". . . it would
seem," he writes, "that the 'pure concept of efficiency,' . . . as the basic
'good' of administrative study, is a mirage. For is not the ultimate
question 'Efficient *for what*'? Is not efficiency for efficiency's sake
meaningless? *Is efficiency not necessarily measured in terms of other
values?*" [15]

The effect of the point of view of management upon program de-
velopment in research libraries is, of course, even less susceptible to
measurement than the dollar cost or dollar savings. With its emphasis
upon constant scrutiny of existing practices and constant planning,
scientific management emphasizes a dynamic interpretation of each
individual library program. Perhaps the most striking illustration of
the rather general adoption of management points of view is found in

the planning of buildings to house research libraries since World War II. Such libraries as those of Princeton University, Massachusetts Institute of Technology, Harvard University, and the universities of Iowa, Minnesota, California, and California at Los Angeles have built anew or added to their physical plants. Common features are to be found in such buildings, but the variety is great and bewildering unless one sees each structure in relation to the growing program of each university. Again, scientific management is not responsible for these edifices, but it has contributed its methods to the planning of details and operations.

Scientific management does not, of course, determine a library's program, but it emphasizes that procedures employed must be consonant with that program. A minor example may illustrate this. In the late 1930's the Widener Library at Harvard was the first to adopt punched cards for circulation use. This was done after careful study, and the results were satisfactory. By 1949, however, the library no longer was under the same obligations so far as circulation records were concerned. The punched cards were therefore discarded in favor of a still simpler charge card. The change was misinterpreted by some librarians as a failure of the punched-card system.

Whether library staff members have benefited from scientific management depends, of course, upon individual points of view. However, the emphasis being placed in almost every large library upon an active personnel office indicates at least an increased awareness of problems relating to the staff. In the past twenty years experts in scientific management have put less emphasis upon mechanical means of increasing production and more upon discovering the potentialities of human beings. One quotation from a work by Elton Mayo, a leading practitioner and theorist in the field, will indicate the broad considerations upon which personnel practices are now—or soon will be—based: ". . . in a modern and industrial society ultimate decisions . . . must vest in groups that possess both technical and social understanding. This requirement does not by any means exclude workers. . . . an *adaptive* society cannot be controlled by any but *adaptive* persons. And this again implies a need for greatly improved concepts of training and education, and equally improved methods." [16]

Such thinking incorporates humane considerations which were not present in earlier theory of management. In the research library field an excellent example of the newer attitude is found in an article by E. B. Stanford on supervision.[17]

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Another evidence of the greater consideration given to administrator-staff relations is the multiplication of staff newsletters. Such publications, infrequent ten years years ago, are now used in various large research libraries to inform the staffs of activities in their institutions, to build *esprit de corps,* and to make the work being performed meaningful to those who are doing it. It would be interesting to know how many members of the Association of Research Libraries now issue such newsletters.

In summary, it can be said that scientific management has greatly affected research libraries, though not much has appeared in print about the developments involved. Research on both large and small topics concerning scientific management in these libraries would help to determine the extent and the value of the practices employed. Many adaptations of the dicta of scientific management to research libraries have been made as twentieth-century reactions to twentieth-century problems, rather than as conscious applications of those doctrines. They have been of great value to the libraries, at least in some cases. The greater emphasis placed by experts in scientific management upon relating management practices to program development, and upon humane development of staffs, is reflected in research libraries.

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