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Library Trends

Research Methods in Librarianship

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July, 1964
Library Trends

A Publication of the University of Illinois Graduate School of Library Science

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Each issue is concerned with one aspect of librarianship. Each is planned with the assistance of an invited advisory editor. All articles are by invitation. Suggestions for future issues are welcomed and should be sent to the Managing Editor.

Published four times a year, in July, October, January, and April. Office of Publication: University of Illinois Graduate School of Library Science, Urbana, Illinois. Entered as second-class matter June 25, 1952, at the Post Office at Urbana, Illinois, under the act of August 24, 1912. Copyright 1964 by the University of Illinois Board of Trustees. All rights reserved.

Subscription price is $6.00 a year. Individual issues are priced at $2.00. Address orders to Subscription Department, University of Illinois Press, Urbana, Illinois. Editorial correspondence should be sent to LIBRARY TRENDS, University of Illinois Graduate School of Library Science, Urbana, Illinois. Indexed in Library Literature, Library Science Abstracts, and PAIS.
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Introduction

Guy Garrison

The papers presented in this issue of Library Trends, with the exception of the final one, were originally prepared for the Conference on Research Methods in Librarianship sponsored by the Library Research Center, Graduate School of Library Science, with the cooperation of the Division of University Extension, and held at Allerton House, the University of Illinois conference center near Monticello, Illinois, on September 8-11, 1963. The papers were scheduled to be issued as a separate monograph until the publications board of Library Trends expressed interest in using them as the basis for an issue of this journal, thereby assuring at once a wider distribution and a more permanent format than conference papers ordinarily achieve. Since these papers were prepared for use at a conference, this issue of Library Trends departs somewhat from its usual practice of publishing commissioned articles gathered by an invited advisory editor. Despite this fact, the papers do meet at least partially the Library Trends' editorial requirements for "evaluative recapitulation of current thought and practice" on a special topic. The topic, moreover, is one which has been badly neglected in library literature in recent years.

The papers are published here in substantially the same form as they were given at the conference. Some of the papers have been cut by the editor to avoid repetition of material in two or more papers and to eliminate purely topical references to the conference. In addition, several papers were modified in certain details by the authors to benefit from ideas or suggestions that arose during discussions at conference sessions. One of the talks from the conference, given informally by Dr. Kern Dickman, Assistant Director of the Statistical Service Unit, University of Illinois, is not included here. Mr. Dickman

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spoke about the work of the Statistical Service Unit and the Digital Computer Laboratory of the University and about some of the implications of facilities of this type for research in the social sciences. The paper by Jesse Shera, which was especially written for this issue, serves to round out the collection of articles on methodology by providing some definitions, a necessary step which many conference participants thought was slighted in the conference papers and in the discussions that followed them.

This Conference on Research Methods in Librarianship was the first such meeting to be sponsored by the Graduate School of Library Science, and perhaps by any library school. The paucity of published literature on the applications of research methods to library problems has been a matter of concern to all who are interested in research, and especially to those who teach research methods and related courses in library schools. While the amount of time and money devoted to research in librarianship has increased substantially in recent years, the fact remains that the library profession has not yet faced up to the necessity for equipping itself with the full range of skills and techniques appropriate for carrying on competent research. The effort, a few years ago, of the Committee on Research of the Association of American Library Schools to stimulate a coordinated program of research in the major library schools did not succeed. This Committee was, however, responsible for the October 1957, issue of *Library Trends* devoted to research, which provided a useful group of articles summarizing the current state of research on various aspects of librarianship. While summaries of research and articles about the need for research are commonplace in library literature, the actual research studies which appear all are too often routine, superficial, and questionable in methodology.

The conference last September, in addition to furnishing an overview of current practices in library research, served also to call attention to the need for establishing some continuing, if informal, means of fostering better communication among research-minded librarians. Research deserves to be recognized as a distinct specialty within librarianship and its practitioners should have some outlet for discussion, criticism, and shared experience. While the Allerton House conference did not take any action or make any recommendations on this matter, it did show that there are many librarians concerned with research who would welcome the chance to affiliate with a group or organization identified with research in librarianship. Publication of
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these papers in Library Trends will perhaps serve to make an even wider audience aware of this need.

In attendance at the conference were eighty persons, including twenty-seven faculty members representing eighteen different library schools. There was substantial representation also from federal and state library agencies, college and university libraries, public libraries, and professional organizations. Since a topic as narrow as research methodology would appear to have limited interest, the size of the registration was encouraging. Out of this first conference came many suggestions of other aspects of the research process that could profitably be explored at future meetings, and a second conference on a related topic is being planned for 1965.

The conference chairman, who also served as advisory editor of this issue of Library Trends, wishes to thank the Publications Board for making possible the appearance of the conference papers in this form. A great debt is owed to the speakers who prepared and delivered papers at the conference and are at last seeing them in print. These people were chosen to speak at the conference because of their knowledge of various kinds of library research and for their ability to match theory with practical experience in discussing research techniques. Within the limits of a single three-day conference it was not possible to represent all types of libraries, all methodologies, or all aspects of the research process. While these published papers do not furnish the complete manual of research methods in librarianship which is badly needed, they do serve to indicate something of the scope and variety of research methods that can be applied to library problems. They also indicate clearly that library research methodology has a long way to go before it meets the standards that are routinely expected in other disciplines.
Resources For Research in Librarianship

ROBERT B. DOWNS

Any discussion of research methodology in librarianship or anything else should begin, as Socrates constantly reiterated twenty-four hundred years ago, with definitions of terms. Broadly interpreted, the word librarianship encompasses an immense variety of activities and interests. The ancient concept of librarians as mere custodians of books has become largely passé in our generation. Modern members of the breed range from generalists, who know something about practically everything, to specialists on the most minute matters. It would be fair to state, in fact, that there is room in our profession for anyone concerned with intellectual affairs—and perhaps for some who are not.

Under the vast rubric of librarianship, we have blanketed the bookmobile operator in New Mexico, the research librarian at DuPont and General Motors, the expert on children’s literature in the Chicago Public Library, the Air Force librarian at Chanute Field, the Urbana High School librarian, the Director of the Harvard University Library, the Librarian of Congress, the rare book specialist in the J. Pierpont Morgan Library, and so on and on, ad infinitum. All these and many more play key roles in the great, complex American library system, performing a range of services which the rest of the world is striving to emulate.

An illustration of the diversity of interests represented in librarianship is offered by the area which has occupied a good share of my professional attention over the past thirty years, that is, general resources for research. Investigations of library resources have taken me into studies of various phases of inter-library cooperation, union catalogs, union lists, bibliographical centers, storage centers for little-used books, specialization of fields, microreproduction projects, regional planning, abstracting and indexing, bibliographical publishing, evalu-

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Resources for research in librarianship divide themselves naturally into two principal categories: the unpublished manuscript or archival records, and the printed or near-print materials. Let me review briefly the nature of each type.

Unless materials are discarded to save space, every library accumulates an archival collection, consisting of its own correspondence, general and departmental reports, trustees’ minutes, book lists, records of borrowers, and similar materials. In a great majority of cases, these files are only of local interest, but are indispensable to anyone who attempts to chronicle the history and progress of an individual institution. In certain instances, the libraries may be of national and international interest, and their archives form an important chapter in the nation’s cultural history. Note, for example, the excellent published histories, based principally upon their own records, of the Library of Congress, the New York Public Library, the Boston Athenaeum, the Philadelphia Library Company, the New York Society Library, the John Carter Brown Library, the Chicago Public Library, the Harvard University Library, the University of Virginia Library, and others. Without pride in their ancestry and care in the preservation of primary sources relating to their past and present activities, these famous institutions could scarcely have had their stories reconstructed by historians.

Closely related to institutional archives are the private papers of outstanding librarians, whose contributions to their profession make their careers of more than ordinary significance. These manuscripts are often scattered, especially if an individual has been associated with more than one library. Noteworthy biographies that have been written on the basis of such collections include H. M. Lydenberg’s John Shaw Billings, Fremont Rider’s Melvil Dewey, Maurice Tauber’s Louis Round Wilson, Edward Holley’s Charles Evans, Lewis Branscomb’s Ernest C. Richardson, Joseph Borome’s Charles C. Jewett, Linda Eastman’s William Howard Brett, W. P. Cutter’s Charles A. Cutter, Chalmer Hadley’s John Cotton Dana, Robert Shaw’s Samuel S. Green, and the autobiographies of William Warner Bishop, Charles H. Compton, and Fremont Rider.

Other basic resources for a well-rounded picture of American librarianship are the archives of library schools. Since a majority of librarians begin their professional careers with a period of study in
these institutions, we should expect to find there the earliest data on thousands of members of the library world. Here, too, are the raw materials for research into the history of library education; without the graduate library schools, we could hardly lay claim to being a genuine profession. The admission, scholastic, and placement records of the schools contain information nowhere else available. We can only hope that space requirements will not force the discard of non-current records.

In particular peril, probably, if they have not been taken over by active schools, are the records of accredited library schools no longer in existence, such as the New York State Library School at Albany, the Carnegie Library School of Atlanta, the Hampton Institute Library School, the Los Angeles Library School, the New York Public Library School, the St. Louis Library School, the College of William and Mary Library School, and the Carnegie Library School of Pittsburgh. Some of these library schools had careers extending up to sixty years or more.

The archives of professional associations are still another prime source for research on librarianship. There are at least seventy national, regional, and state library associations of general character in the United States, and an even larger number of local library clubs and of organized groups of library trustees, children's librarians, school librarians, etc. Unquestionably, the work of library associations has been and continues to be a major factor in the development of librarianship. Beginning with the informal Librarians' Conference of 1853 in New York, and continuing with the formal organization of the American Library Association in 1876, followed by the Special Libraries Association, the Association of Research Libraries, and groups devoted to such special fields as medicine, law, music, theology, and theatre, we have had professional organizations actively working toward higher standards of service, better professional education, research in library problems, and the dissemination of library ideas.

Consider, for example, the diversified program carried on by the oldest and largest of the professional societies, the American Library Association. Its twelve major divisions cover every type of library and type of activity. None of the modern library's essential elements—staff, books, readers, and buildings—is neglected in the multiple interests with which the Association is concerned today. The varied program carried on by the American Library Association, and to a
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lesser extent by other library professional associations, produces a vast amount of archival records—literally mountains of paper. Since much of the work of these organizations is assigned to voluntary boards and committees, scattered over the country, with frequently changing personnel, the records are decentralized to a large extent, and tend to be lost and discarded after a few years. Only the materials accumulated at headquarters are likely to be preserved. A systematic plan for the preservation of worthwhile files amassed elsewhere than in the central offices would be highly desirable, but is nearly always handicapped by space considerations.

These, then, are the chief categories of archival and manuscript resources for research in librarianship: the records of individual libraries, the personal papers of leaders in the library profession, library school files, and the records of library associations.

One other source, of a somewhat heterogeneous character, ought to be mentioned. Librarians are more addicted than any professional group of my acquaintance to meetings, in addition to those of their regular associations, which certainly meet often enough. Thus we have a plethora of special conferences, institutes, and workshops, lasting perhaps from one day to a week, dealing with just about every conceivable aspect of librarianship. Often they are one-shot affairs, or they may continue year after year, as do the University of Chicago Graduate Library School annual summer institutes beginning in 1936, and the University of Illinois fall institutes at Allerton House, which started ten years ago. Sometimes the proceedings of such conferences and institutes are published, though often a stenotypist's transcript or a collection of working papers may be the only physical records of them in existence. In any event, while there is a naturally considerable variation in value, this type of activity as a whole engages the leaders in various branches of the profession, new areas may be explored, and the treatment of a field can be systematic and comprehensive. Therefore, they represent significant contributions to research in librarianship, and ways and means should be found to record and to preserve unpublished materials produced by them.

Another favorite pastime of librarians is surveys, ranging in scope from studies of small individual institutions to, say, the Public Library Inquiry, national in coverage. The nature of surveys is likewise diverse, including studies of administrative structure, personnel, book collection and other resources, cooperative activities, community relationships, clienteles served by libraries, buildings and equipment.
Again, this is a type of activity which has drawn upon some of the best talents available in the library field, and has had far-reaching influence. If there are those who are skeptical of the effectiveness of library surveys, their attention ought to be directed to E. W. Erickson's ACRL monograph *College and University Library Surveys, 1933-1952.* Erickson demonstrated conclusively that, at least for the particular group of surveys which he investigated some years after the fact, the recommendations of the surveyors had been extensively implemented in such matters as government, organization and administration, technical and readers' services, integration and cooperation, library buildings, resources for study and research, personnel, and financial administration. A good number of the scores, or perhaps hundreds, of surveys produced in the past twenty-five years or so have been published, or issued in near-print form. Others are available only in the files of individual libraries, or are in the possession of the surveyors, but even those published necessarily exclude much raw data of value for research in librarianship and for studies of methodology.

Up to this point, I have been concerned primarily with unpublished materials relating to librarianship. There is, of course, an immense literature of published writings, too. Probably of most permanent importance are the serial publications, the periodicals, yearbooks, annual reports, and government series. A steady stream of publications—books, pamphlets, journals, and reports—emanates from international, national, regional, state, and local organizations. A directory, compiled by the ALA Periodicals Round Table, discovered some 700 library periodicals being issued in the United States alone. Quality is rising along with quantity. From the point of view of literacy, depth, and substance, the best of our journals compare favorably with professional journals in other fields. Many articles represent solid research achievements, and the general average is going up, as you will agree if you compare the current crop to some of our library literature of a generation ago.

For the student and research worker in library science, the strongest collections are to be found principally in libraries associated with library schools. Attempts at comprehensive coverage of the field of library literature, American and foreign, are being made at Columbia, Illinois, and several other schools carrying on doctoral level work. Collections of similar scope and size would be found also in such institutions as the Library of Congress and the New York Public
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Library, which are not connected with any library school. The extent of literature in the field is indicated by figures from the Columbia University School of Library Service Library, which reports holdings of some 85,000 volumes, and the University of Illinois Graduate School of Library Science Library which has 50,000 bound volumes, 876 current periodicals, and 28,000 library reports organized for use. The library school libraries of the University of California (Berkeley) and the University of Michigan report collections of 32,000 and 14,000 volumes, respectively.

The materials classified as library science, technically speaking, represent only a fraction of the literature useful to the research worker in the field. We are concerned with the entire broad sweep of bibliography, history of books and bookmaking, paleography, printing, binding, bookselling and publishing, copyright, national and subject bibliography, and related aspects. But beyond library science and bibliography, and because modern librarianship is a social science, anyone seriously engaged in research in the library field draws extensively upon such areas as sociology, statistics, political science, economics, law, public administration, education, and communications. Depending upon the nature of his investigation, he may also wander off into practically any other discipline one may name—philosophy, religion, science, technology, fine arts, literature, geography, or history, for example. Like the universal man of the Renaissance, we refuse to confine our interests to anything short of the universe.

If we accept this premise, that nothing pertaining to man and his affairs is alien to our interests, it is legitimate to conclude that we are concerned with the totality of library resources. As the concluding section of this paper, therefore, I want to sketch briefly some problems and techniques involved in studies of library resources for research.

Specifically, how can the scholar, the research worker, or the advanced student discover the rare books, periodical files, manuscripts and archives, scarce pamphlets, and special collections pertinent to his area of investigation? Present-day library methods have, of course, provided a variety of approaches. Multiple national, regional, state, and local union catalogs and union lists have been created to locate specific titles. Special collections are being developed through such devices as the Farmington Plan and Public Law 480, for the cooperative acquisition of foreign books. Progress is being made, though we are far short of the millennium, in the application of automation and
mechanization to bibliographical problems. Several significant experiments are under way for the cooperative purchase and storage of little-used library materials.

My own activity in the study of library resources has been of a type somewhat different from any of those named, i.e., surveys of collections. Library resource studies can be, and are, of varied nature, ranging from descriptions of the holdings of single institutions to those of cities, states, regions, and countries. Also, the thoroughness, the amount of detail, the competence of surveyors, the care in advanced planning, the form and arrangement of data, and other aspects differ considerably from one study to another. Because some surveys have been cursory, incomplete, and poorly organized, doubts have been expressed about the value of resources surveys. Among the purposes they are ostensibly designed to serve are to aid the research worker in locating materials which he might otherwise overlook or find with difficulty, to give leads for inter-library loan inquiries, and to furnish a basis for cooperative agreements.

Techniques for describing and evaluating library facilities on the research level are still experimental. No generally accepted standards have been established, chiefly because research materials are highly heterogeneous. Even when dealing with a reasonably well-defined field, the problem of achieving clear descriptions is extremely difficult. There are those who maintain that only the subject specialist is qualified to evaluate a research collection, and the job should therefore not be attempted by the librarian with general training. Others suggest that the specialist's point of view is too narrow and should be combined with the librarian's broader knowledge of the library's total resources. Likewise, it may be argued that surveys ought to be restricted to relatively minute subject areas, with detailed analyses, rather than being inclusive of a library's resources as a whole. Exactly what types of data will be most helpful to the scholar and student are also matters of dispute.

An adequate period of preliminary preparation is one of the essentials of a successful survey of library resources. One should know precisely what details are wanted and what to look for in each collection. For example, one ought to learn the background and objectives of the library being studied and examine all available sources of information about it: annual reports, college catalogs, library handbooks, published and unpublished bibliographies, and descriptive publications. If surveying a specialized subject, it is well to familiar-
ize oneself with the literature of the field through handbooks, textbooks, and histories, to learn the terminology, to find out who are chief authorities, to look into the research trends, and to identify the learned societies and other organizations responsible for the most authoritative publishing in the field.

Another way to become acquainted with a special field is to analyze the Library of Congress classification and the latest edition of the Dewey Decimal Classification. Each classification provides for certain topical divisions and types of publications. Orientation is aided further by checking guides to reference books, subject bibliographies, classified directories of periodicals, indexing and abstracting services.

In comparing library collections, the most frequently used single criterion is the number of volumes. Unfortunately, there is little uniformity at present in the methods used for measuring library holdings. The matter of standardizing practices has received, and is receiving, the attention of various organizations. Three possible approaches have been proposed as offering the best solution to the problem: first, the traditional one of counting the number of volumes; second, recording the number of titles; and third, measuring the number of linear feet occupied. Each scheme is supported by some rather persuasive arguments, but the statistics-of-volume method is unlikely to be superseded by any other plan now in sight. The chief desideratum at present is to obtain greater uniformity in the actual application of the volume count.

Another aspect of volume statistics is the need for breakdowns by subject fields. There is no logic, for example, in comparing the number of volumes in an engineering library with those in a fine arts library, though that is exactly what we have been doing in publishing total figures for all libraries, without regard to the nature of each individual library. Analyses of holdings by broad subject fields would be more significant than over-all figures, even if categories could not be very closely defined.

There is still another phase of the problem of measuring library collections. Some of the most important materials in research libraries cannot or should not be counted as volumes. Of this nature are archives, manuscripts, speech recordings, music records, radio transcriptions, music scores, slides, maps, motion picture films, microfilms, microcards and microprints, posters, programs, photographs, prints, photostats, broadsides, etc.

To get back to further consideration of surveys of library resources,
the most important rule to be kept in mind by the surveyor is to avoid generalities and to stick to concrete facts. To illustrate, the surveyor ought specifically, wherever pertinent, to record the number of volumes or items in a collection, the period covered, the up-to-dateness of the material, what subdivisions of the subject have been stressed in the collection's development, and the presence or lack of essential reference works, periodical files, collections of primary sources, bibliographies, and rare books. Significant comparisons may be made also between a given collection and those in the same general field to be found in other institutions.

The richness and variety of American library resources are unsurpassed, and probably unequaled, by those of any other nation. Institutions of higher education in the United States contain in excess of 200,000,000 volumes, and are growing at the rate of 10,000,000 volumes per year. The book resources of the 823 largest public libraries total 130,000,000 volumes, and their growth rate is also approximately 10,000,000 volumes annually. Add to these impressive figures the holdings of great reference libraries and hundreds of special libraries, and we can rightly claim to have provided our scholarly clientele with riches beyond compare. There is no reason to anticipate, however, that library users will be satisfied. They will constantly demand more and more—and rightly so.

References

Survey Method in Approaching Library Problems

MAURICE F. TAUBER

Any librarian who examines Library Literature will soon be aware of the number and kinds of library surveys which are conducted annually in the United States, as well as in foreign countries. The June 1963 issue, for example, includes citations to Humphry's Library Cooperation; The Brown University Study of University-School-Community Library Coordination in the State of Rhode Island; the New York State Education Department's Reference and Research Library Resources Plan for the Rochester Area; An Analysis of the Proposals of the Commissioner's Committee as Applied to a Selected Region; Wezeman's Extension of Library Service in the Birmingham-Bloomfield Area of Michigan; Oehlerts' Study to Determine the Feasibility of Establishing a Cooperative Technical Processing Program and Direct Transmission of Interlibrary Loans; Tauber and Kingery's Central Technical Processing of the Nassau Library System; A Report on the Organization, Facilities, Operations, and Problems; Boaz and Castagna's Ontario (Calif.) Public Library, A Survey; Recommendations for Future Development and Planning; Ward's Plan for the Chico Public Library from 1962 to 1985; A Study with Recommendations; Taves and others' Public Knowledge and Attitudes Regarding a Rural Minnesota Library System; and Gaver and Velazquez' School Libraries of Puerto Rico; A Survey and Plan for Development. The same issue of Library Literature listed two articles by Phinney: "Community Survey: A Technique for Planning Library Adult Education," Wisconsin Library Bulletin for January 1963, and "Recent Trends in Public Library Adult Services, Report of a Survey," in the ALA Bulletin for March 1963.

This bibliographical listing indicates that several of the major aspects of library service were involved in these studies, surveys, re-

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ports, or whatever else they may be called, in addition to total library programs for a community or a larger region. Resources, inter-library loans and other forms of cooperation, technical processing, as well as other matters are considered. All types of libraries are represented. Development of a building program, such as that by W. H. Jesse for the University of Concepción in Chile, is regarded as a special type of survey, and is noted under the entry of Architecture in *Library Literature* for December 1962. But building programs require intensive examination of the functions, service programs, and plans of a library or a library system. It may be noted here, too, that there have been a number of personnel surveys which have been restricted to the problem of staff utilization, although usually general surveys, as well as building programs, have been concerned with analysis of personnel.

In the conduct of surveys, there have been some individuals who have been and still are (in some cases) associated with special types of surveys. The April 1, 1961 issue of the *Library Journal* contains a version of a talk I presented at a meeting of the Hawaii Library Association which dealt with several matters relating to surveys. Among these were the individuals and groups which have used the survey approach to solve library problems. With some minor adjustments, it may be useful to categorize these participants as follows:

1. Surveys by library associations
2. Surveys by non-library associations
3. Institutional surveys: (a) educational, (b) endowed
4. Governmental surveys: (a) Federal, (b) state, (c) regional, (d) local, (e) departmental or agency
5. Commercial organization surveys (surveyors may be employed by associations, governments, or foundations through grants)
6. Personal consultantships or personal surveys (employed by institutions, associations, accrediting agencies, governments, foundations, or commercial organizations)
7. Foundation surveys (direct grant to either a group or individual, or to an institution)
8. Surveys conducted by library schools (sometimes in connection with master's or doctoral studies)
9. Surveys by accrediting agencies
10. Self-surveys (either completely independent, or with the aid of an outside consultant).
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Librarians now not only have colleagues who have had depth experience in surveying, but library surveys have also attracted the interest of management engineers, operations specialists, psychologists, social scientists, and industrial experts to their problems, particularly in such areas as library personnel, library machinery and equipment, and the general field of information storage and retrieval. Architects and psychologists have long been concerned with matters of buildings and reading, respectively. Whether librarians will have the cumulative knowledge to formulate principles and establish standards from these various studies is something about which one can speculate as library problems become more massive and complex. Problems are already in frustrating stages in respect to systems of service for all types of libraries.

If library service is not different from other callings, in the sense that it should progress as its practitioners become more familiar with its problems and recurrent obstacles, then it would appear that the future has much to offer the field. Undoubtedly, the present emphasis on science and technology has been brought about by the need of researchers in these areas to have immediate access to information and analysis. Any precise improvement of library or informational services in science and technology may well have direct implications for the social sciences and the humanities.

Although there are some librarians and others who regard surveys as interesting exercises without definite implications for the field as a whole, the record shows that this has not been really true. Various textbooks on research methodology in the social sciences usually devote a substantial chapter or section to the survey method. It is not necessary to explore these disciplines in detail. It is the purpose of the remainder of this paper to consider the following aspects of the survey: (1) its nature, (2) its approaches, (3) its limitations, and (4) its results. Reference to particular persons or surveys will be made at appropriate points. The emphasis is on the individual library and library system survey.

Nature of the Survey Method

The survey method is among the oldest efforts in the social sciences to assess a situation, whether it be for the purpose of developing a city plan, a street or road plan, a water system, a school system, a medical program, or a governmental structure. Geodetic, geologic,
cartographic, and other scientific surveys have added knowledge to man's search for understanding the world in which he lives.

In many of the social science surveys, we find an appreciation for the future. Although there are surveys directed toward the formulation of recommendations for the quick solutions of immediate problems, in government, education, transportation, and other fields, many surveys, as may be recalled from the items listed at the outset of this paper, are concerned with a ten- or twenty-year period (or even longer).

The purposes of the surveys also differ in terms of depth. Some surveys are conducted for the purposes of confirming assumptions, others for synthesizing data on a particular area of a library, or a total library system, and others for assessing a situation in terms of correcting inadequacies or removing inefficiencies. The basic goal is improvement, which is the goal for research in other fields, even though in pure research we recognize no necessary relationship between the study and immediate practical application. A survey does not have to be conducted only when a situation has become faulty, but many surveys are introduced at this point.

The sampling of titles provided earlier represents but a few of the many hundreds of surveys which have been prepared for college, university, school, governmental, and special libraries of all kinds. Even though some surveys start with the consideration of specific questions, others are directed at providing a full-scale review of all aspects of a library, including such areas of study as history and background, community analysis and governmental relationships, financial administration, organizational patterns and administrative relationships, technical services, readers' services, personnel, resources, use of the library, quarters and equipment, cooperative arrangements, and in some cases, training for librarianship. Most, if not all, of these areas are included in major surveys of university libraries and the larger public library systems.

A final point may be made on the nature of the survey. In the categorization of surveys, it was observed that they have been conducted by groups or individuals. There are many one-man surveys, and names such as those of Louis R. Wilson, M. L. Raney, A. F. Kuhlman, Joseph L. Wheeler, Keyes D. Metcalf, Ralph Ulveling, Charles Mohrhardt, Ralph E. Ellsworth, William H. Jesse, Frederick Wezeman, Robert B. Downs, Ralph R. Shaw, Leon Carnovsky, Andrew D. Osborn, Lowell Martin, Edwin Castagna, Walter T. Brah
Survey Method in Approaching Library Problems

Edward A. Wight, LeRoy C. Merritt, Raynard C. Swank, Robert E. Kingery, Martha Boaz, Emerson Greenaway, and others have appeared on reports of library systems. These and other librarians have worked also with colleagues on surveys.

It is desirable here to say a word about the team approach to surveys, which is exemplified in the Library Building Consultants, Inc. approach, but was prominent in the Los Angeles Public Library Survey, the Public Library Inquiry, various projects of the Council on Library Resources, Inc., the American Library Association Library Technology Project, and foundation and government sponsored surveys. Unless there is a restricted area of concern, such as a particular department or service of a library, the idea of the team approach should be commended. The use of two or more minds on a particular library problem not only results in a fertile atmosphere of questioning, but also serves as a guard against bias or limited experience. In accrediting surveys, librarians work with colleagues in other fields, and this has been generally fruitful. Gelfand has written in detail on this approach.²

Approaches of the Survey

In its totality, the survey utilizes not only the major methods of research, such as the historical, descriptive, and (on a more limited basis) the experimental methods, but also the common devices of research, such as documentary and statistical analysis, questionnaires, checklists, visits, interviews, observation, and the compilation of specialized data for particular conditions. In essence, all of these approaches are designed to enable the surveyor to gather, synthesize, analyze, and interpret data for the purpose of offering solutions to pressing problems, for improving conditions, for correcting faulty conditions, and for planning. It may be worth while to consider briefly each of the major approaches.

The usefulness of documentary sources in surveys is apparent when one is concerned with such matters as library organization, library government, legislation, finance, personnel, and the operations and routines involved in management and administration. The use of such materials in surveys, particularly in the development of the background for evaluating present conditions, requires the insight and imagination that come from wide experience and the recognition of the variables present in a particular problem. Experience with similar problems, familiarity with sources, and a flexibility of mind are es-

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sential to the proper evaluation of such evidence. The surveyor must be careful not to accept the documentary sources as valid without confirmation from other sources. He must not be easily led to draw conclusions on the basis of scanty information found in reports, documents, policy statements, minutes of meetings, previous studies and surveys, annual summaries, manuals, operational outlines, charts, forms, and production records, but he must use these in proper relationships.

The statistical sources and published data which may be available to the consultant will need to be checked with current data. Such data may be concerned with book stock, other collections, personnel, production, and services of various kinds. Various personnel data may be in the records of the library or may be collected through questionnaires. In connection with operations, data may be developed through the keeping of records by staff members or by the recording of data by close observation on the part of the surveyors. In a few surveys, time and motion studies have been carried on in various activities of the technical and readers' services. The usefulness of such data will depend directly upon their validity and reliability, and these should be determined by the surveyors with a strict sense for statistical values. Quantitative comparisons with other libraries, in operation or costs, have been made in a number of cases, but again the question of validity must be raised in connection with this approach.

The standard textbooks on research methodology do such a thorough job on the structure, problems, and limitations of questionnaires and checklists that it is unnecessary to dwell on these at great length. However, they are used frequently in surveys for gathering data, and require the careful analysis that should be given to all such devices. The questionnaire is a complex instrument, and so it is not surprising that one surveyor will use successful questionnaires or checklists that have been devised for other surveys. The battery of questionnaires devised for the survey of the Columbia University Libraries in 1957 has been applied in at least two other university library surveys. Although tailoring of questionnaires is essential for a particular library, effective forms might well be used in appropriate situations. Open-end questions have been found useful when extensive comment is wanted.

The use of checklists has been somewhat more limited. In personnel inquiries, as well as in operational and collecting activities, they have been applied with some success. With both questionnaires and check-
lists, it is essential that testing be done before they are distributed to large groups of respondents. It is probably needless to suggest that questionnaires and checklists should be considered today within the framework of possible machine analysis.

The approach of the surveyor has usually included spending periods of time at the library that is being studied. If there is a team involved, individual members spend periods together or separately. In some cases, members of a team are assigned specific areas for intensive examination. The visits are essential for checking on questionnaires, for identifying additional matters which have not been presented in documentary or other sources, and for clarifying relationships.

Interviews are essential in following up questionnaires or checklists, in isolating personal comments which individuals are reluctant to put on questionnaires, in providing the surveyor with an opportunity for judging the respondents, in discussing matters with individuals who find it difficult to complete forms easily, and in exchanging information with individuals in such ways that other avenues are opened up for the investigator. The experienced surveyor becomes aware of the truth of facts as he talks with different staff members on the same matters. Staff on all levels usually are interviewed.

Allied to both visits and interviews is the device of observation. In many surveys it has been necessary to have periods of time devoted to close observation of operations, services, and equipment. The absence of data or records on various factors requiring study may be met by careful observation on the part of the surveyors. The persistence in observation may be useful in revealing relationships that are otherwise overlooked. The trained observer in a library survey is similar to a researcher in any field seeking to isolate facts and to separate them from hearsay or conjecture. In any of these approaches involving discussions and observations, it has been found useful to employ cameras and recording devices when applicable and convenient.

Through questionnaire and interview, as well as through on-the-spot examination of conditions, it is possible to gain insight into the various factors that are being studied in a survey. However, it becomes necessary in some instances to require the development of specialized data. One of the astonishing conditions that the surveyor sometimes finds is an absence of a clear understanding of the particular functions of a library or information service. In several instances during the past few years, one of the first tasks in the survey was to
determine just what the library was supposed to do in respect to the work of the parent institution. This may be somewhat removed from research per se, but the problem was a basic one of definition and philosophical reflection. Statistical, geographical, and other data which are not usually kept may be developed by staff members who are experienced and equipped to work up such information. This is true also of various types of illustrations.

In any profession which seeks to raise the level of work of its craftsmen, it is essential that guiding principles and standards, so far as they can be derived, be identified and made available to the practitioners. Surveyors, if they are conscious of the existence of principles or standards, should use them when appropriate. A recent survey of the Sioux Falls College Library employed the college library standards of the Association of College and Research Libraries as a basis for appraising the conditions. Standards represent guides, and must be applied with caution.

Surveys themselves have had a role to play in the development of guiding principles, in that the surveyors have frequently brought to light some activity or operation that might be described as "successful experience." In such works as those by Randall and Goodrich, and later by Lyle, on college library principles, and similar compilations for university libraries (Wilson and Tauber), public libraries (Wheeler and Goldhor), technical libraries (edited by Lucille Jackson), and special libraries (edited by W. Ashworth), there has been an obvious reliance upon the findings of surveys to provide guidance in a variety of practices and procedures, and to point up policy development. The statewide survey in California under Wight is an example of an exhaustive analysis of factors which are involved in effective library service, and might be adapted to other states.

Limitations of Surveys

A dozen or so years ago, Goldhor wrote a "Critique of the Library Survey." The point that he made was that outsiders called in to survey a library might not be in a position, from the point of view of knowledge, to do as well as staff members in surveying the conditions and making proper recommendations. In the recent volume on Practical Administration of Public Libraries, by Wheeler and Goldhor, there is some reservation against the self-survey, even though it may be useful. They write: "Staff members are often inhibited in their approach and findings, hesitating to criticize or make drastic
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Suggestions which might offend their colleagues. They may lack the completely fresh, challenging viewpoint based on wide experience in scrutinizing other libraries." There are various problems, however, which are susceptible to objective examination by the staff members themselves. The qualification of surveyors may also be a limiting factor. In some cases, a team approach would be more useful than an individual surveyor.

There have been other criticisms of surveys, particularly in regard to inadequate sampling. The recent access to libraries study, the Public Library Inquiry, and surveys of individual libraries have been subjected to question in regard to this significant factor. This may be a deficiency of a study, and not necessarily of the method. The problem of sampling involves, for example, collections, personnel, cataloging production, and similar variables, and is one that requires special consideration in each study. The nature of the study may determine the extent of sampling required, and the experienced surveyor should be in a position to recognize limitations in sampling if there is an effort to generalize and draw conclusions. In an authoritative survey, supported and encouraged by the administration of an institution, the cooperation and aid essential in obtaining adequate sampling are sometimes sufficient to provide the surveyor with proper data. Even then, it may be difficult for the respondents to provide the data.

An example of a difficult area of exploration is the evaluation of collections of a library. There has been widespread use of checklists of titles—books, serials, or other materials. As is generally known, any list of titles is subject to question. Lists that have been prepared by various academic bodies, organizations, or accrediting agencies have been employed in evaluating collections. Some lists have been prepared by surveyors, with the advice of experts or specialists in the field. The results of checking such lists, however, are generally reported on a quantitative basis, since it is assumed that each item is of equal value. Some further analysis may be gained by categorizing the materials on a subject basis, and by language. The actual listing of holdings by identification of authors and titles, periodical titles, and other specific items helps to clarify the character of the holdings. This is a difficult task, and requires considerable background and knowledge of the different fields. Usually, group evaluation in specialized areas is essential. In the survey of the Columbia University Libraries, the gradation of collections on the levels of (a) basic in-
formation, (b) working, (c) general research, (d) comprehensive, and (e) exhaustive, was designed to guide faculty members in assessing the collections from both quantitative and qualitative standpoints. However, in sampling for some departments, as well as in evaluation, it was pointed out in the report that the results had to be regarded as suggestive and exploratory, rather than as definitive, since the sampling had been spotty. The theory of the approach, however, appears to provide a sounder basis for appraising collections than lists, if a long-term view of collecting programs and policies is wanted. If it is agreed, however, that specific titles do represent strength in particular fields, the use of lists may have some merit. Actually, there are various lists which have been used in surveys, and for a large group of surveys they have been summarized in The University Library.14

In comparisons between libraries on such matters as size and growth of collections, circulation, cataloging production, reference service, and other aspects of service, the measurement is usually done within the framework of available statistics. Librarianship has had some difficulty in such areas as uniform counting, as well as uniform statistics. Such collections of statistics as those compiled by the Association of College and Research Libraries, the U.S. Office of Education, and those that appear in the Bowker Annual have been available for use. While these have been useful, they are still subject to question when used in comparative tabulations in surveys.

Undoubtedly, one of the areas of great concern to the surveyor is the availability of statements of standards, mentioned earlier. The efforts of the Library Technology Project of the ALA and the emphasis that the Council on Library Resources and Committee Z39 of the American Standards Association have placed on standards suggest that perhaps some of the rough measures that we now use will soon be replaced by more precise data. The stress on producing valid measuring instruments verified through experimentation, possibly leading to standardization, marks a recent development that should be helpful to all libraries. Experimentation and study of equipment and services at the Library of Congress, the New York Public Library, the National Library of Medicine, the University of Illinois, the University of Missouri, the University of California, the University of Chicago, General Electric, IBM, and other libraries or agencies represent further directions of the survey technique which may overcome some of the gaps in our knowledge at the present time.
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In the Columbia survey, it was found necessary to devote a section to special problems which could not be examined in a survey of a single institution, since there were implications for other libraries. The entire field of cooperation, if it is to be meaningful, involves libraries which cut across local, regional, and national boundaries. Surveys of state library service, however, may provide a body of data that could be used to explore wider areas of cooperation.

Financial support for a survey may be insufficient and hence make it necessary to curtail examination of aspects which are relevant. The financing of a survey has been one of the less well understood factors. We do know that librarians are likely to underestimate costs of a survey in much the same way as other researchers engaged in intensive projects. With the opportunity for improvement of services as a result of a survey, it would appear that this limitation would be minimal.

Timing of a survey may be an important limiting factor. The period of the survey should be long enough to take into account variables which would appear at different times of the year, as in an academic situation. Moreover, timing is important in relation to staff activity as well as in regard to users. Some surveys have been conducted when the period was atypical in book ordering, cataloging, and other processing. As a result, the findings did not reveal the true situation. Surveys should be stretched over a sufficiently long period to make it possible to include variables, but at the same time they should not be too long in appearing after data have been collected.

The formal presentation of the report is a critical part of the survey process. The provision of proper financial support for the issuance of the report is essential and should be made a part of the contract. The report itself should be organized so effectively that the parties responsible for its implementation will be able to use it easily. Proper classification of the contents, including summaries, attractive format, simplicity in writing, and the use of tables, diagrams, charts, maps, and other illustrations are desirable if the report is to make a full impact. Illustrations, for example, may be more important than many words. Such was the case of the sheet from the abominable shelf-list at Cornell, or the photograph of the hopelessly inadequate reading room at Virginia Polytechnic Institute. It is important that the report omit no important data in order to save on costs of reproduction. Nor should it be reproduced in unnecessarily expensive format just to make an impression.
Prior to final reproduction of the report for general use, it has been found useful in many instances to have appropriate staff members of the library examine it for errors of any kind, omissions, or misinterpretations. This is not to give the staff any prerogative to inject their own impressions or recommendations, but is designed to eliminate any small errors which if they are not caught may prove to be distractions from the significant findings of the report. Misinterpretations, of course, should be corrected.

With the development of more libraries, as well as more library schools, there is a need to issue a large enough edition of copies of surveys which may be available to them for use by students of librarianship. There has been a past history of minimal copies available to the profession for many important surveys.

Results of the Survey Approach

In 1936, writing in the volume of Library Trends, edited by Louis R. Wilson, and issued by the Graduate Library School of the University of Chicago, Edward A. Wight discussed "Methods and Techniques of Library Surveys." He wrote: "The survey is relatively novel and recent in public-library practice. A bibliography complied at American Library Association headquarters in January, 1936, listed thirty-eight surveys. . . . A total of six surveys are reported before 1920, and twenty-five after 1925." 15

At this time, there were probably but a handful of university and college surveys. In 1958, Peter Jonikas 16 issued his bibliography of public library surveys and cited almost 300 separate items. There have been in the college, university, school, and special library fields probably an equal number during this period. Individual authors, persons engaged in higher education, staffs of research bureaus, special committees, and in some instances, trustees, were responsible for the surveys, as described by Wight in 1936. He also called attention to the fact that reports of surveys sometimes appeared in typed or mimeographed form, or in summary form, or in one instance, in a local newspaper.

The present day survey is likely to be reproduced in multiple copies and made available to library schools, libraries, and others, as well as the persons directly interested in the study. The period from 1936 to 1963 has shown a remarkable movement towards the survey as a method of evaluating a library situation. In the opening paragraph of this paper, mention was made of the June 1963 issue of Library
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*Literature.* It should be noted that there are many surveys, particularly those made for organizations, business, industry, and government which are regarded as internal administrative reports and are not reproduced for general circulation. It is possible that this restriction has resulted in analyses of library situations which are significant for improvement of general library conditions, or which include data which are not found elsewhere in the professional literature. In general, however, major surveys are published today.

Wight found that public library surveys of 1936 made only a limited contribution to the study of library problems because they were subjective, and because they had limited distribution and frequently appeared only in summary form. There was little or nothing descriptive of methodology, and actual tabular and other data were lacking. It would be difficult to criticize many surveys produced in recent years for the same reasons. That subjectivity appears in surveys is to be admitted. However, there appears to be more attention to gathering facts for purposes of answering specific questions, adherence to objective appraisals of conditions, and providing a workable program for those who have to implement the recommendations.

Wilson prepared a statement on university library surveys in 1947. Although it is clear that improvements in a surveyed library might come from a variety of pressures, it was suggested that surveys have been influential in academic situations in (1) opening up channels of information concerning the library, (2) orientation of the administration in the purposes of the library and its role in education and research, (3) codification of a library policy, (4) development of a program of action, (5) increase in library support, (6) solving of specific problems, and (7) stimulation of the library staff.

In 1961, Erickson prepared a study of the results of twelve college and university library surveys. He examined 775 recommendations made in these surveys, and found that 60 per cent were carried out completely or in large part, and that 10 per cent more were achieved to a small degree. Only in 15 per cent of the recommendations were the surveys regarded as having exerted no influence. Of course, it is important to differentiate between recommendations, since they do not all have the same value. Erickson considers this question and concludes that significant recommendations were given proper attention. Direct or indirect effects of a survey on developments in a library may be difficult to trace. A reviewer of the Erickson work, Marion Milczewski, is critical of the concentration on tabular
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presentations, and suggests that they "... led the author both to give a misleading appearance of precision in the results so carefully tabulated, and to understate the values of social and political pressures which lead to correction of deficiencies to which surveys are intended to call attention." Milczewski suggested a further study which would give attention to the "animating spirit which inspired each of the surveys," and examine the surveys in "the light of objectives of the surveys, methods of persuasion used to effect changes, and of the resulting changes in the library climate of the institutions affected." Milczewski admits that this is a difficult approach, but believes it would add up to an important sociological document.

Indeed it would, and I would encourage any one who could isolate such evidence to write it up for the profession. Felix Reichmann's detailed analysis in the September 1962 College and Research Libraries of the reclassification at Cornell, one of the recommendations made in the Cornell Library survey, is an example of the problems, persistence, personal dedication, and as Milczewski would say, "animation" that resulted in the completion of the project. There is no substitute for the individual in librarianship. It is quite possible that if we had high-powered staffs in libraries, who could anticipate developments so that errors or miscalculations could be avoided or minimized, surveys would not be needed. On the basis of the variety of surveys which have been made, particularly in respect to planning and the movement towards cooperation on several fronts, it does not appear that surveys will meet a quick end.

Mention should be made that a study of the results of public library surveys has been started at Columbia University by William L. Emerson, of the Palos Verdes (Calif.) Library. He expects to examine the outcome of recommendations of sixteen public library surveys in California, made from 1948 through 1959. Perhaps he will be able to gather some insights which go beyond tabulations.

In respect to the outcome of surveys, it would be a serious omission not to comment finally on the activities of the sponsoring agencies. Proper backing by an institution's administration, proper cooperation by the constituents, proper orientation of potential participants, proper publicity, wide distribution of the findings to all relevant audiences, and publication all aid in making the study a document of importance.

Surveys are not cure-alls. They are also not claimed to be more than the application of knowledgeability to a given situation in order
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to resolve serious and incipient problems, to devise blueprints for the future, and to focus attention on the program of the library. When performed on a high level, and when the library staffs involved have a willingness to experiment and to change, they can be helpful in up-grading library service. In the last analysis, the character of the implementation will determine whether or not surveys are effective, working blueprints.

References


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Everybody who has had a few years of high school education has had one or two courses in history. Quite a few excuse their life-long aversion to history with the assertion, "I never could remember dates," and many believe that history and dates are synonymous. Besides, history has been lampooned very frequently. Ford's remark "history is bunk" is well known, and Mark Twain's quip, originally against science, has often been redirected against history: "History is the best investment; one gets a wholesale return of conjecture out of a small number of facts." The most biting remark on history is "History is something that never happened, written by a man who wasn't there." Alas, this statement is partially right. Practically no historian was an eye-witness to the events he describes, and there can be no doubt that history has recorded a number of "facts" which never happened.

Library history provides quite a few examples to support such a statement. We all remember the famous story of the destruction of the Alexandria library by the Arabs in 640 A.D. The Arab general asked the khalif what to do with the books, and he received the answer: "If the books agree with the Koran, they need not be preserved and can be destroyed. If the books disagree with the Koran, they should not be kept and have to be destroyed." And thus the renowned Alexandria library fell a victim to the narrow-mindedness of the Arab troops. The trouble with this often repeated story is that there is no contemporary account of it whatsoever. It is first mentioned six hundred years later when the sentiment both in Egypt, which was then under the power of the Mamelukes, and in the Europe of the Crusades was decidedly anti-Arab. Doubtful, also, is the destruction of the Alexandria library by Julius Caesar. In many textbooks one finds the anecdote that Julius Caesar had to burn down the port of Alexandria, and tragically the library burned in

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this holocaust. Here, too, we have no contemporary eye-witness; the story appears for the first time several hundred years later in Plutarch.

The history of the Middle Ages is full of events which did not happen. In spite of the fact that we know very well about the participation of laymen in manuscript production, the vast majority of visitors to an exhibit of medieval manuscripts would regard every manuscript as the product of a monastic scriptorium, and more than one visitor would exclaim: “A monk must have worked all his life writing this manuscript.” If the manuscript should be after 1200, the chances are ninety-nine to one that it had never come near a monastery; even as the product of a monastic scriptorium, it may have been written by a layman, as the Benedictines employed laymen in their scriptoria already in the early Middle Ages, and later monastic orders, such as the Dominicans, traditionally had hired laymen for copying their manuscripts.

For scores of years we learned about the horrible year 1000, when allegedly the whole European population was in fear that with the advent of the year 1000 the world would come to an end. To the best of our knowledge, hardly anyone in Europe at that time found in the number 1000 the cause for chiliastic fears; many centuries later a historian, trying to identify himself with the mentality around the year 1000, came to the conclusion that all of Christian mankind must have trembled, and they have trembled ever since.

The majority of us are still convinced that the Jews were the most important money-lenders and bankers of the Middle Ages. This allegation is about as true as the statement that Wall Street and the American steel industry are dominated by Jewish capital. Recent research has questioned Charlemagne’s surprise when the Pope crowned him emperor and has placed this description in the same category as Washington’s cherry tree.

Is there something odd about the historian? Although he is sincerely committed to the Ranke postulate “to describe things as they really happened,” he can accept these mistakes which have been made in history. He can laugh—not with great satisfaction, of course, but he can accept them as an integral and necessary part of history. This leads us to the question: what does the historian do? The research work of a chemist, physicist, philosopher, or mathematician is easier to understand. If any one of these scholars finds something of importance, it will, in due course, be included in a textbook of
chemistry, physics, and so forth, and will thus become new chemistry, new physics. But the historian does not make history.

The work of the historian is a complex intellectual activity. He collects his primary data with scientific care and precision. The vestiges of the past must be examined and authenticated, and classified by systematic methods and scrupulously weighed. All the techniques of modern science as far as applicable are put to the use of the historian. This is especially true for our four most important auxiliary sciences: paleography, diplomatics, numismatics, and sphragistics, in which scientific techniques are used in the same manner as our sister science archaeology has made use of Carbon 14.

For the evaluation of the facts, all disciplines of the social sciences and humanities are put to good use; foremost are sociology, political science, and economics. Historians have also learned from medical history, and books like Zinsser's *Rats, Lice, and History*¹ and Mac-Laurin's *Mere Mortals*² and *Post Mortem*³ have given us valuable insight. Almost everybody in our generation has been deeply influenced by psychology. As the nineteenth century has been at times called the century of science, our own time may well be called the era of psychology because we all try to explain everything in psychological terminology. One of the best examples of the influence of psychology on history is Toynbee's "challenge and response" and "withdrawal and return." Darwin's evolutionary theory had a great impact on Otto Seeck,⁴ and Ratzel's book has made us conscious of the influence of geography and climate.⁵

Our general philosophical approach (*Weltanschauung*) is a determining factor in the way we contemplate past events. We may see them as the action of blind fate or as the manifestation of God's will. We may see in history a sign of continuous progress, or an up-and-down movement like the tides of the ocean. Causation for the modern historian is thus a *plurale tantum*—that is, it can be used in the plural only.

The next most important act of the historian is to recreate the past in his own mind and to communicate his vision to the audience. The process of creation is an artistic one. Zola once defined art as a piece of nature seen through a temperament; we may similarly define history as past events seen through a temperament. Although our scientific conscience will demand objectivity, our temperament will not permit us to reach such a goal. As Mommsen said: "History is neither made nor written without love and hate.”
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A more sophisticated definition has been given by Cohen: "History is imaginative reconstruction which is scientific in its terms and artistic in its formulation." The historian thus must have both head and heart; I shall come back to this definition later on.

Historians have never been too modest in extolling the specific virtues of their craft. This lack of modesty, incidentally, we share with most other academic disciplines. The basic idea is that the evolutionary concept is most important, and things are what they have become. Already the first scientific historian Thucydides said:

And with regard to my factual reporting of the events of the war I have made it a principle not to write down the first story that came my way, and not even to be guided by my own general impressions; either I was present myself at the events which I have described or else I heard of them from eye-witnesses whose reports I have checked with as much thoroughness as possible. Not that even so the truth was easy to discover; different eye-witnesses give different accounts of the same events, speaking out of partiality for one side or the other or else from imperfect memories. And it may well be that my history will seem less easy to read because of the absence in it of a romantic element. It will be enough for me, however, if these words of mine are judged useful by those who want to understand clearly the events which happened in the past and which (human nature being what it is) will, at some time or other and in much the same ways, be repeated in the future.6

Similar thoughts are repeated by practically every historian. For instance, Collingwood says: "The value of history is that it teaches us what man has done and just what man is." Benedetto Croce summarized the philosophical aspect of the evolutionary theory underlying all history: "The concept that concrete and true knowledge is always historical knowledge has the obvious consequence that the knowledge or qualification or judgment of an event cannot be separated or distinguished from the knowledge of its genesis. . . . To know (to judge) an event is to think of it in its being, and therefore in its birth and development among conditions themselves altering and developing, since its being can only lie in the course and development of life."7

History has long since branched out from the description of diplomatic and military events. "One by one the professions have become historical-minded. Today the history of law, the history of medicine, public health, technology, and other professions is increasingly ap-
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preciated by those devoting their lives to those fields. It is a hopeful sign. No mariner would attempt to navigate without his logbook. From the trials and errors of one's predecessors it is possible to learn much of use and to deepen one's insight and kindle one's imagination." And Butterfield said: "By the use of history the scientist may become more conscious of the forces that are liable to affect his work, more alive to the nature of the methods he is using, more sensible to the direction in which he labors, more cognisant of the limitations under which he labours, more aware of the things which ought to be regarded with relativity." On the facade of the Clemens Library on the Michigan campus we read the proud words: "In darkness dwells the people which knows its annals not."

Historians have always been anxious not to overemphasize the mere utilitarian value of history. The most important quality of our discipline lies in the growth of understanding and in the intellectual satisfaction of recognizing the developments. Already the Greeks had a very healthy distrust of the importance of the "immediately useful," and Carnovsky has admonished us that we should not condemn an investigation as devoid of value whatsoever because we cannot see at once its practical application. Morison in his history of Harvard describes with justified pride the contribution of Harvard-trained Bostonians to the cause of the American Revolution and concludes with the following remarks: "Thus Harvard rendered her sons fit to serve their country, not by 'practical courses' on politics and government, but by a study of antique culture that broadened their mental vision, stressed virtus and promoted ἀρετή, the character appropriate to a republican."

Historians and librarians have much in common. The most obvious similarity is that both professions are based on the printed word. Historians exclude cultures for which no written documentation exists and classify them as pre-history. It is needless to emphasize that libraries would have no reason for existence without books. Both professions are interdisciplinary and global in their outlook. Further, they have in common that they are the prime target of dictatorship. Both the teaching of history and the easy access to books in libraries is contrary to the unchallenged power over mind and body which is always the goal of dictatorship. As a fourth point I refer to the "head and heart" necessary for an historian. The same quality is imperative for a librarian. Adams in his challenging article "Librarians as Enemies of Books" wrote: "Book collecting and the building-up of great
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libraries is as much a matter of the heart as a matter of the head. The man who is all heart and no head would be a very bad librarian. But the man who is all head and no heart is a very dangerous librarian." 13 The historians of librarianship, too, have never been too modest and have strongly emphasized the importance of historical studies for a fuller understanding of the library's functions and objectives. Our Hungarian colleague Varjas writes: "... the study of books and library history are the basis upon which the development of scientific and public libraries rests." 14 And the South African Vleeschauwer states: "Library history is not merely the study of the dead past. It constitutes the actual library. If we remove library history from library science, we promote our own ignorance with regard to present library realities." 15 The best synthesis of this line of thought is found in the introduction to the history of libraries in the great German Handbuch der Bibliothekswissenschaft:

Today we find countless monographs and papers on the subject of library history; it has assumed a higher position in teaching and training as we have realized that even contemporary questions have their historical aspect. The whole catalog problem assumes a more spiritual aspect as soon as we learn to look at it historically. The dangerous industrialization of intellectual work, literary mass production, and the process of inert masses of books in libraries all fall into place within this framework. Only through history do we understand the librarian as "homo sui generis" in both his light and dark sides. What is the meaning of library science? To what extent is scholarly criticism of libraries as run by professional librarians valid or invalid? Will special librarians and documentalists be the librarians of the future? What does comparative library science accomplish? All these questions can be answered convincingly only through the study of history. Thus the historian Karl Brandi of Gottingen has recommended to the officials in the ministries of education who generally are misinformed about library matters to take their orientation and advice from history. For the librarian in particular historical awareness is one of the most indispensable qualities for the productive practice of his profession.16

If I may add an American voice, I quote Jesse Shera: "... library history is the concern of every librarian, for history is not an esoteric or special branch of knowledge but a synthesis of life itself." 17 Library history is not only a branch of library science, but it is also a section of general history. To make this point, I cite Adolf von Harnach's commentary on the great French librarian Leopold Delisle,
"His work shows how the history of libraries throws light on the general history." \(^{18}\) Benedetto Croce wrote a famous book with the title *History as the Story of Liberty*.\(^{19}\) The title is a quotation from Hegel's *Philosophy of History*, but Croce has basically changed the connotations of the statement. For Hegel, liberty is an evolutionary process which has brilliantly culminated in the Germanic world; for Croce, however, liberty was, remains, and always will be the moral ideal of humanity. Mussolini rewarded him with his undying hate, and a fascist mob burned the private library of the great Italian philosopher. Library historians could well write a book with the title "Library History as the Story of Intellectual Freedom and Democracy" because we believe that intellectual freedom is a moral axiom of humanity.

The attitude of American librarians towards library history has not always been overly enthusiastic and sometimes not even very hospitable. J. Periam Danton contrasts regretfully the quantity of good historical studies on German university libraries with the small number of titles on American institutions. His conclusion, "... one would have difficulty pointing to more than a score of sound historical studies, and the number of such works on individual university libraries is even fewer," \(^{20}\) surely does not give a glamorous picture of American activity in this field.

If I may be permitted to psychoanalyze our profession on the basis of two phrases which are used frequently, I would come to the conclusion that we are ambivalent with regard to history. On the one hand, we have a dark suspicion that historical studies are a waste of time, mere "dates." We do like the word "pioneer"; we share the love for this phrase with American educators, and we are all continuously pioneering in readers' services, in technical services, in the application of machines, and so forth. The pioneer, of course, does not have the time nor the interest to look backwards; for him the past is dead and of no consequence, and his main attention is focused on the future.

Some outstanding American librarians have been rather unhappy about this negative American attitude. I surely do not want to give the impression that in my opinion all outstanding American librarians have been interested in history; that would be very foolish indeed. Neither do I believe that in order to be an outstanding American librarian one has to be historically inclined; that would be rather narrow-minded. But the fact remains that a great number of our important colleagues did show a vital interest in history. Pargellis \(^{21}\)
calls us an unhistorically-minded group, and Pierce Butler states with deep regret that we are so intent on getting things done that we dislike any interruption for theoretical discussion.

We are still basically influenced by the philosophy of the eighteenth century enlightenment. We believe in continuous progress and advancement, and, thus, knowledge of the "primitive past" is hardly worthwhile. Last year an American educator, addressing a group of young students, assured them that the advancement that had been made within the last twenty years was greater than whatever mankind had achieved from the beginning of the world up to 1940. If we believe that this advancement will go on at the same speed as in the last twenty years, I really shudder to contemplate the glorious position mankind will have in 1980. I am especially frightened with regard to communications. I found out that it is quite easy to fly from New York to Urbana; but there is no public transportation at all from Urbana to Allerton House. If this progress continues, then in 1980 I will have no difficulty in flying from New York to the moon, or maybe to other places in outer space, but will I be able to get to Chicago?

Foreign librarians have regretfully noticed the "insular" attitude of American librarians toward all achievements outside the United States and outside our present generation. Practically all of our foreign colleagues describe our operations with great respect and are interested in emulating many of our practices. But they cannot fail to see a certain over-emphasis on technique and efficiency and our concern with the present and the future rather than with the past.

There is, however, also a positive side to this picture. The second of our favorite phrases is "to start a tradition." The word tradition has a certain fascination for us; we are rather proud of it and would like to have more of it. Tradition, however, is only understandable if we accept historical continuity.

A small but very vocal group among American librarians has spoken out loudly and vigorously for the importance of library history. The American Library History Round Table, for instance, has successfully kept up the interest in historical studies in our group. Pierce Butler hammered into his devoted students, and emphasized in numerous articles, his fundamental belief that the librarian needs an explicit theoretical understanding of his cultural motivations. Carleton B. Joeckel wrote in his *The Government of the American Public Library*, a book which comes pretty close to an immortal classic in
American library literature, that without sympathetic appreciation of the stages through which the public library has progressed, it is difficult to understand its present position. Among the great number of devoted pupils of Butler, I quote Jesse Shera: "... librarianship, unfortunately, has been little given to professional introspection. ... Excessive attention to technology is especially dangerous to the librarian." The number of important library histories is small indeed, but the quality is very high. The new development starts with Arnold Borden's essay in the Library Quarterly of 1931, "The Sociological Beginnings of the Library Movement." Borden clearly sets forth the program of the new trend: "... the library needs to be studied in the light of sociology, economics, and other branches of human knowledge." Gwladys Spencer's book on the Chicago Public Library is America's greatest contribution to the field of library history. In breadth of vision, thoroughness of study, and in scholarly interpretation, it has remained unsurpassed so far and must be regarded as one of the outstanding publications in librarianship, not only from an American point of view, but also in the global aspect of our profession. Sidney Ditzion in his social history of the American public library movement takes a similar broad sociological and economic viewpoint. He, too, finds multiple motivation for the rise of the public library: cultural competition, both national and international, cultural nationalism, urban-industrial complex, humanitarian ideas, principles of equality, and so forth. Shera in his Foundations of the Public Library gives exact details of the New England background: geology, population, agriculture, industry, commerce, cultural ties, and so forth. He writes, "... any serious investigation of the library as a cultural phenomenon must be prefaced with ... a brief description of those elements which are most prominent in the general social pattern.

In conclusion I would like to make very sure not to have given the impression that I consider historical studies to be the most important field of scholarly activity. No discipline can claim much importance—not theology, nor philosophy, nor history nor the exact sciences; they all mirror only one aspect of the totality of life, and they all are equally necessary to give us the picture of the whole. Neither do I believe that history is the most important scholarly activity of a successful librarian. American libraries have many functions and objectives, and they do need men and women of a variety
of aptitudes and intellectual preparations. But among those, history has its significant place. We could not run our libraries if every staff member were especially devoted to historical studies; however, if American libraries were to have not one staff member interested in history, we would have a poorer intellectual profession indeed, and we would be giving less efficient service.

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29. Ditzion, Sidney. op. cit.

These few remarks on bibliographical research are not concerned with the technique of assembling lists of books on a single subject, or preparing a list of books printed in a given place. They pertain to that kind of research which fits the definition of bibliography in the Oxford English Dictionary which reads, "The systematic description of books, their authorship, printing, publication, editions, etc." Since this paper was scheduled to follow one on historical research, I have limited myself to research in the field of books as material objects, the physical volume, the publication, editions, etc.

Countless definitions of bibliography in this sense have been written. One of the earliest and most quoted is Copinger's expression that "Bibliography has been called the grammar of literary investigation." Each scholar working in the field tends to develop a definition that fits his own understanding of his research. One often takes off in a slightly different direction from those who preceded him, although building on the earlier work. For example, Greg said of bibliography:

... it is in no way particularly or primarily concerned with the enumeration or description of books ... bibliography has nothing to do with the subject matter of books, but only with their formal aspect.

... Books are the material means by which literature is transmitted; therefore bibliography, the study of books, is essentially the science of the transmission of literary documents.

To this Bald has added:

... if bibliography is the study of "the material transmission of literary texts," it is concerned with the material objects by which they are transmitted—printers' tools as well as books and their components—and with the human activities which transmit them. This is obvious, because the material objects could not have existed without

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the relevant human activities, which must accordingly be regarded as basic. Now the studies which deal with the various types of organized human activities *per se* are the group loosely known as "history and the social sciences," and it is to them that bibliography belongs.¹

Fredson Bowers, reducing the scope of bibliography to the two aspects which he designates as *descriptive bibliography* and *analytical bibliography*, says:

The methods of descriptive bibliography seem to have evolved from a triple purpose: (1) to furnish a detailed, analytical record of the physical characteristics of a book which would simultaneously serve as a trustworthy source of identification and as a medium to bring an absent book before a reader's eyes; (2) to provide an analytical investigation and an ordered arrangement of these physical facts which would serve as the prerequisite for textual criticism of the books described; (3) to approach both literary and printing or publishing history through the investigation and recording of appropriate details in a related series of books.²

Analytical bibliography deals with books and their relations solely as material objects, and in a strict sense has nothing to do with the historical or literary considerations of their subject matter or content. The findings of analytical bibliography may be used to clarify these considerations, but literary history or criticism is not in itself bibliographical.³

It is, therefore, the basic function of a descriptive bibliography to present all the evidence which can be determined by analytical bibliography applied to a material object.⁴

Although, as I said earlier, each scholar develops his own definition of bibliography, perhaps none would disagree with Curt Buhler's statement:

... bibliography is not so much an end in itself as it is an ancillary investigation to the study of the text (be it literary, historical, or scientific); consequently, it seems to me that a complete account of the textual contents of any volume... is absolutely required. In short the bibliographer, and in the long run the historian of culture for whom the bibliographer is laboring, expects to be informed of three basic facts: (1) what edition does the book belong to, (2) what are the principles of its physical construction, and (3) what does the volume contain.⁵

It is clear that none of these quotations apply to the kind of bibliography that is most clearly identified by the term "enumerative
bibliography." The bibliographer is not primarily concerned with contents; he considers the contents only if they provide evidence needed in the study of the physical book. The bibliographer is responsible for grouping the books according to editions, variants, issues, and impressions, and for tracing the relationship of one edition to another.

Before turning to an examination of work that is being done in the field of bibliography, as illustrative of the methods of bibliographical research, let us listen once more to the voice of Sir Walter Greg. Greg quotations are numerous, and a common theme runs through all of his writing; in this particular selection he defines the work of the bibliographer in some detail.

Bibliography is the study of books as tangible objects. It examines the materials of which they are made and the manner in which these materials are put together. It traces their place and mode of origin, and the subsequent adventures which have befallen them. It is not concerned with their contents in a literary sense, but it is certainly concerned with the signs and symbols they contain (apart from their significance) for the manner in which these marks are written or impressed is a very relevant bibliographical fact. And, starting from this fact, it is concerned with the relation of one book to another: the question of which manuscript was copied from which, which individual copies of printed books are to be grouped together as forming an edition, and what is the relation of edition to edition.

Modern bibliography is often said to date from the publication of Pollard’s *Shakespeare Folios and Quartos* in 1908, but this was merely the culmination of work that had been in progress for a number of years. In December 1906, a paper written by A. W. Pollard and W. W. Greg, entitled “Some Points in Bibliographical Description,” had been read at a meeting of the Bibliographical Society. In 1914 Ronald McKerrow’s “Notes on Bibliographical Evidence for Literary Students and Editors of English Works of the Sixteenth and Seventeenth Centuries” appeared in the *Transactions of the Bibliographical Society*. McKerrow stated as his purpose his desire to provide students with an elementary knowledge of the mechanical side of book-making that could be used for evidence as to the book’s history. He said:

... bibliographical evidence will help us to settle such questions as that of the order and relative value of different editions of a book; whether certain sections of a book were originally intended to form
part of it or were added afterwards; whether a later edition was printed from an earlier one, and from which; whether it was printed from a copy that had been corrected in manuscript, or whether such corrections as it contained were made in proof, and a number of other problems of a similar kind, which may often have a highly important literary bearing. It will indeed sometimes enable us to solve questions which to one entirely without bibliographical knowledge would appear quite incapable of solution.¹¹

As these quotations indicate, the bibliographer may be looking for specific things as he examines the book, but there is no fixed rule as to how he approaches his work. There is not even any method that can be said to be the most efficient manner of proceeding. To the bibliographer a number of things become evident as he handles a book. His fingers will tell him as he turns the leaves if there is a difference in the weight of paper; his eyes will note any variation in the placement of type on a page even though he is not consciously looking for a variation. But as we are librarians, suppose we begin our consideration of the bibliographic approach with the title page.

Having in hand a book for which descriptions are available, one can sometimes tell from the title page alone that it is a different edition from some other copy he has handled. Although the title page does not always tell the story, it is a good starting point. Matthew Lewis’ *The Monk* provides a fascinating study of title pages.¹² The book is supposed to have appeared originally in 1795, but no copy of a printing made in that year is known to exist. What is known as the first edition, first issue, appeared in March of 1796 and bears the date 1796 in Roman numerals on the title page. A year later an edition which carries on the title page the words “The Second Edition,” but still with the date 1796, appeared. Bibliographers, who have determined that this is the same book as the first edition, first issue, except that the cancellans title page of the first issue has been replaced by another cancellan, refer to this second work as first edition, second issue. In October of 1796, a slightly different title page, including the name of the author and the designation “Second Edition” was used for the true second edition of the work. Presumably the publication was so popular that a third edition was called for the next year. It was a review of this third edition that led to the suppression of this work. Forbidden to sell his copies, the printer may well have felt that he must find some way to salvage the money he had invested in this publication. Apparently he solved his problem by unearthing the can-
celled title pages for the first issue of the first edition, which must have been stored away when he inserted the cancellans bearing the designation "Second Edition." He used these leaves to replace the title page of the condemned third edition, thus creating a third edition, second state. When he exhausted his supply of first edition title pages, he had new ones printed to use with the rest of his third edition. Oddly enough, he copied his text for this title page not from the title page of the first edition which he was trying to create, but from the title page of the true second edition, omitting the author's name. He thus copied the Roman numeral date 1796. Then he attempted to convert this to the date 1795 by scraping away the final I of the numeral. Bibliographers believe that it was the publisher who was responsible for this attempted alteration because marks of erasure are visible in all existing copies. The success was variable. Sometimes the letter shows faintly, and the scraping of the paper is always visible. However, even perfect scraping could not produce a perfect title page because the removal of the final I necessitated the removal of the period that followed that letter. The copies with the newly printed title pages thus become third edition, third issue, and they exist in both first and second states.

This is not a complete listing of the editions of The Monk, but this is enough of the examination of variant title pages. The study of these title pages did not solve the problems of this book; they only indicated that study of the book was necessary and pointed the way to the need for meticulous checking of signatures and pages. This led eventually to complete identification of the various editions, issues, and states.

Page by page and word by word checking is also necessary for the studies which lead to compositor determination. Here the bibliographer searches for the common words and notes their spelling—on the theory that a single printer will use a given form for these common words. The folk tales that spelling had no fixed form and that the printers used any spelling which would properly complete a line are only partly true. No complete study has been made of Elizabethan spelling, and there were variations in spelling, but it has been proved that individual compositors tended to follow a fairly uniform pattern of spelling. Noticeable variations in spelling would, therefore, seem to indicate that more than one compositor worked on a book.

It has been proved that two compositors worked on the Shake-
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speare folios. This field of investigation has been developed since 1920 when Thomas Satchell noted that the spelling used in Macbeth in the first folio falls into two distinct divisions.13 Today the method of determining compositors of the Shakespeare plays by the spelling test is well known to bibliographers. E. E. Willoughby demonstrated that Satchell’s theory of the use of two compositors in Macbeth could be equally proved by other plays in the first folio.14 He named the compositors A and B, identifying the work of each. More recently Charlton Hinman has identified a third compositor whom he named compositor E. He suggested that this workman might have been an apprentice since his work was clearly less expert than the work done by A and B.15

The work of compositor determination goes on steadily. From a study of the first folio, the bibliographers moved on to the quartos and to the works of other Elizabethan dramatists. John Russell Brown presents proof that the two compositors who worked on the second quarto of Hamlet were the same as the compositors for The Merchant of Venice and identifies them as X and Y.16 Frank S. Hook identifies two compositors who worked on Peele’s Edward I.17

Spelling is not the only means of identifying the work of a compositor but it has been a good beginning point, even though an examination of the page make-up is sometimes a quicker way to tell whether more than one compositor was engaged on a job. Satchell began with a very short list of words that could have different spellings and used them as a test to determine the work done by individual compositors. The number of test words has increased, and the relationships are tested as well as the words themselves. Other techniques are combined with the spelling test in attempting to determine the number of compositors engaged on a work; for example, the running titles set by two compositors in the same volume may vary slightly.

Compositor determination by means of a spelling test and the placing of items on a page is necessarily a slow task. As Dr. Walker pointed out in a study on the understanding of an old spelling edition of Shakespeare, it is an expensive pastime, requiring as it does freedom from other responsibilities and considerable independent means. This is no work for the professor who is urged to publish. Many of the people working in the field are professors, however. Some of them may be research professors who can devote hours to this kind of painstaking research, but others carry on with the work which fascinates them in spite of the difficulties of time.
THELMA EATON

The material used in the printing of books, the paper on which the book was printed, the press on which the printing was done, the type and the ornaments which filled the printed pages, have long been the subject of investigation by bibliographers and continue to be studied.

Handmade paper was in use until the beginning of the nineteenth century, and until the middle of the eighteenth century it was laid paper marked by wire and chain lines. It might or might not have watermarks and counterwatermarks. Even if watermarks were present originally, they may have disappeared into the folds of the binding or in the course of years have been cut off by careless rebinding. In laid paper the wire and chain lines are a constant record. If a watermark is present, it is useful. Many of the early books contain not one watermark but several. Various elaborate explanations have been offered for this, but the simplest statement is that dealers collected paper from various sources and in responding to a request for so much paper might well send paper from several mills.

The watermark did indicate quality. When the German factor of a trading house in Valencia placed an order with a paper dealer in Genoa for paper bearing the mark of the Moor or the broken column, or paper of a similar quality, he was ordering fine quality paper, suitable for printing a Bible. What kind of a watermark was on the paper sent to Valencia cannot be proved because, although the Bible was printed, it exists today in a single leaf. If a book is a folio, the watermark can be found with ease and can be used as evidence. Service books for the church and Bibles were usually printed as folios, and a discussion of an unsigned service book or Bible will usually present as evidence any information about the paper. One of the arguments advanced for placing the printing of the Constance Missal in Basel was that the paper bore the watermark used by Basel papermakers. Since the bindings of the three extant copies of this work also are characteristic of Basel workmen, there were two kinds of evidence which associated the printing with that city.

One of the chief uses which the bibliographer makes of the lines and watermarks is to examine a leaf that seems to have been added. If the leaf is not conjugate with its proper mate, why isn't it? If the leaf isn't the proper side of the paper, something that can be told by the grooves made by chain lines and ribs made by wire lines, it is clearly suspect. But a single copy will not tell you whether that leaf represents a later addition to the book, or whether all copies have it.
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Ordinarily a cancel is quickly indicated by a stub, but in some re-bound books the stubs have been removed. The hand-written page substituted for a printed page in the 42-line Bible owned by the General Theological Seminary should have been discovered long before it was. It lacks a watermark and should have had one.

The study of type used by printers has long been used to identify unsigned works and to relate works to given printing establishments. Henry Bradshaw did a great deal of this work and, although most of us are not able to remember type faces as Bradshaw could (it is said that he never forgot a face he had seen), work in this field goes on and unsigned books are placed as to location, printer, and approximate date. The bibliographer who comes across an unsigned book will attempt to identify the type as he searches for the printer. If he discovers that a given printer is using the type formerly used in another printing establishment, he may assume that the printer was trained in the established shop and had some type cast from the matrices used there, or that he bought the type used by some earlier press. When we are told that Meynard Ungut, a German, and Stanislaus, the Pole, arrived in Seville, in answer to a summons from Queen Isabella, with type that had formerly been used by Mattias of Moravia in Naples, we may at least ask ourselves if this is evidence that these printers learned their craft in the shop of Mattias.

Not only the type but the ornaments as well passed from one shop to another. Research has identified the routes followed by some of the wooden blocks which appeared in books printed in different countries. There is still work to be done in this field and some of it is being done. Work is also being done in the field of cast metal ornaments. C. William Miller is working with the ornaments found in English printed books. In an article on Thomas Newcomb, he reproduces the ornaments, factotums, and initials used by that printer and tells who used them later. It can be seen that identifying an unsigned work by the technique of identifying ornaments can be dangerous. These decorative designs could be adopted by any printer who cared to use them. When copies were carved in wood, minute differences were likely to be noticeable, and the same set of blocks showed variations resulting from wear. Cast ornaments presented different problems since the matrix could be used again and again to produce type ornaments which were sold to many printers. Even so, the ornaments scattered throughout the text may yield valuable supplementary information to be used in identifying a work. In a later
article, Miller discusses the stock of ornaments held by Thomas Judson and his successors in the years from 1598 to 1683. Again he has accompanied his article with a useful collection of illustrations.

We have been talking thus far about analytical bibliography; that is, the analysis and examination of the printed volume to determine everything we can about its production. Having discovered this information, we must record it in an acceptable form; that is, in a form which will enable us to visualize the volume. This is a field in which a great deal of work has been done. The incunabulists devoted much time to this because it was essential that they should be able to so describe a book that could be identified as a unique object. Pollard brought the art to a high stage in his *Shakespeare Quartos and Folios*. McKerrow has provided the best guide for the student who wishes to attempt this work, and Sir Walter Greg devoted a lifetime to the production of his masterly bibliography of English drama to the restoration. On this side of the Atlantic, Fredson Bowers has written much about bibliography, but he has not to date produced a lengthy bibliography of this type. Like McKerrow, he is a teacher who inspires the people who work with him to follow out various lines of bibliographical research. It is Bowers who has written the most complete discussion of descriptive bibliography, but for the beginner in the field of bibliography it can be almost overwhelming. Pollard and Greg's 1906 article, "Some Points in Bibliographical Description" fills 14 pages in a reprint edition. McKerrow recommends it as a desirable prelude to his 19-page chapter which is called, "Some Points of Bibliographical Technique. The Description of a Book. References to Passages in Early Books." The person who has mastered these two selections will be able to face the 499 pages of Bowers' *Principles of Bibliographical Description*.

What is a bibliographical description? It is a minute and exact description of the physical volume. It is not concerned with the contents but with the form in which the contents are presented to the world. Certain customs are followed, but the bibliographical descriptions have not been standardized to the extent that catalog entries have been standardized. Since the descriptions appear in book form, it is possible for the bibliographer to set up his pattern and use the preface of his book to state what he is doing.

A description does, however, always contain certain parts, and these parts follow a definite pattern. First of all there is the title of the book, copied from the title page exactly as given there. This
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means that information concerning the production of the book is not arranged according to a place-publisher-date formula, but is given in the order in which it is found on the title page, including addresses and other additional material as given there. Roman numeral dates are recorded as printed. A really exact transcription, possible only in a printed bibliography, will show large and small capitals, italic and black letter type. In virtually all instances, line endings are indicated. The second part of a description is the colophon if the book contains one. Third is the statement of format, and fourth the collation stated in signatures with the number of leaves in the various gatherings indicated. This much of bibliographical description is fairly easy, even though the bibliographers do not agree as to what is the best collational formula. Bowers spends many pages discussing this. But the real problem of bibliographical description is to prepare a record of an ideal copy. This becomes a more involved matter. A printed book does not exist alone. Every manuscript is unique, but any book is only one copy of a number of books printed at one time, from one setting of type, although even the novice bibliographer soon discovers that not all of the copies of one edition are alike. An examination of all available copies must be made in order to describe an ideal copy.

Anyone who has examined a work such as Greg's monumental A Bibliography of English Printed Drama to the Restoration has found considerable material about each title in addition to the transcription of the title page, the colophon, and statements of format and collation. These four things are the bare bones of descriptive bibliography; information concerning many other points may be included in the description. There may be notes relating to the typography and layout of the book, telling the number of lines on a page, the height and width, in centimeters, of the print on a page. A statement may be made concerning the type used. The woodcut or metal cut initials, factotums, type ornaments, borders, etc., may be mentioned. There is usually a contents paragraph which lists the complete contents of the book, and gives the beginning of each section by leaf number. Misprints, catchwords, and peculiarities of type (for example, the use of a swash capital in place of a Roman capital to number a signature) may all be noted as a means of identifying a given copy. Other notes are used as needed. The binding may be described; the provenance of a specified copy is usually given. Anything of special interest, such as watermarks, may be placed in a note.
Copies examined are listed, and a list of known copies may be given. Bibliography, then, consists of the analysis of the physical volume, an attempt at determining how it reached that state, and the preparation of a description of that physical volume. The spokesmen for bibliography have all emphasized that it was essential knowledge for all literary students. Today its importance is becoming recognized. The book jacket blurb on Bowers's *Textual and Literary Criticism*, a collection of papers delivered as Sanders lectures on bibliography and published by Cambridge University Press in 1959, says:

The literary critic tends to think that the textual scholar or bibliographer, happily occupied in his trivial drudgery, has not much to say that he would care to hear, so there is a gulf between them. Professor Bowers advances to the edge of this gulf and says several forceful things across it; they turn out to be important and interesting, though occasionally they are scathing. . . . This book should be read by any serious student of English; it is a survey of a developing discipline which he ought at least to understand in principle; it gives a new and more rigorous approach to these problems.

In a matter of fifty-five years since the publishing of the *Shakespeare Folios and Quartos*, bibliographers have gone far, and they will make even greater progress.

This brings me to the end of a discussion of bibliography as it is today in the hands of the followers of Pollard, McKerrow, Greg, and Bowers. If I have said rather less about the methods of this work than might be expected at an institute devoted to the methodology of research, let me quote McKerrow in my defense. He concluded his introductory chapter in *An Introduction to Bibliography* with these words:

One thing I would say in conclusion, that nowhere have I attempted to lay down any rules for bibliographical investigation, for none are possible. There is no general course of inquiry to be followed. Every book presents its own problems and has to be investigated by methods suited to its particular case. And it is just this fact, that there is always a chance of lighting on new problems and new methods of demonstration, that with almost every new book we take up we are in new country, unexplored and trackless, and that yet such discoveries as we may make are real discoveries, not mere matters of opinion, provable things that no amount of after-investigation can shake, that lends such a fascination to bibliographical research.21

[52]
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5. Ibid., p. 31.
6. Ibid., p. 34.
Experimental Design in Educational Research

DAVID R. KRATHWOHL

Let us project an ambitious plan and try to follow it as far as time permits. First of all, let us see if we can obtain some perspective on the research process so as to see what it is that researchers attempt. Second, let us determine the function of experimental design in that process. Third, let us list some of the variables which can be taken into account by a good experimental design. Finally, let us look at a control group type of research design and see how it takes into account the variables discussed above. Obviously, there is so much to include that we shall not be able to cover all of this material in detail.

What is it that we are trying to do in research? The terms “experimentation” and “research” mean many things to different people. To some they mean trying something out to see how well they like it. To scientists they mean careful work and precise methodology. “Research in education” too often takes on the connotation of the former rather than the latter, but there is a considerable difference between merely trying something out and observing its effect, and the careful measurement and analysis we except in research. When one tries something out on an informal basis, one more or less unconsciously evaluates it against what was used in the situation before. This informal evaluation represents a chain of reasoning to determine the better method. In research, one consciously establishes a basis for comparison and delineates the basis on which the comparison is to be made. Basically, one tries to build a very tight chain of argument to the effect that something may be true. This is the first aspect of the perspective on the research process.

A second aspect of the perspective is gained when we ask, “Of what does this chain of argument consist?” It usually starts with a hunch that some relation exists (for instance, that decentralization带到更详细的内容。
of the library results in its greater use) or that some practice is true (a particular way of cataloging leads to greater accessibility). At this step, we are formulating an hypothesis around which we hope to build a chain of reasoning which will show whether or not the hypothesis is true. As the next step, we must gather some observations which would permit us to ascertain the truth or falsity of our hunch or hypothesis. As we decide where we will make our observations, we make decisions about the sample which we shall use. When we make the decisions about what we shall observe, we define operationally the terms in our hypothesis, definitions which are the measures of the variables in our study. We choose in what setting we shall observe the phenomenon in question, making sure that we observe the correct thing and that what we observe is not affected by some extraneous variable that is not part of our hypothesis. At this point, we are developing our experimental design. Thus in many instances our experimental design contrasts observations in an experimental setting with those taken in a like setting where the experiment was not carried on. (This is the contrast between an experimental and a control group.) Finally, we must have some way of evaluating our observations to see whether what we expected did indeed occur and that this occurrence was not a chance happening, that is, a happening which might have occurred because of the particular sample chosen. A statistical model assists us in arriving at this conclusion.

These are the steps involved in building the chain to permit an inference about the truth or falsity of an hypothesis when we are doing experimental educational research. Obviously, not all educational research is experimental. Certainly there is very good educational research which deals with philosophical questions, but this falls outside the scope of this discussion.

The research process comes into better focus when we note a third aspect of this perspective on educational research, namely that there is a direct parallel between an experiment which is statistically evaluated and the problem solving that we do everyday. In the research situation, however, we are much more self-conscious about the way in which we perform each of the steps and about making sure that we have accounted for possible alternative explanations of the phenomenon that we are observing.

In both instances, we start with some sort of a hunch about what is true which leads us to make observations to ascertain the truth
or falsity of that hunch. The use of operational definitions and measures in educational research, however, is perhaps a more careful way of focusing our perceptions than we typically use. Similarly, the development of a sampling plan or an experimental design represents more careful attention to the matter of what and under what circumstances we observe than we typically apply to everyday problem solving. In everyday problem solving we typically apply some logic to the phenomena which we observe to determine the truth or falsity of our hunch. In the experimental situation, a combination of the statistics that we bring to bear on this situation, together with the experimental design, represents the application of logic. The logic being used, however, is a kind of mathematical logic applied to numerical data rather than the logic applied to a verbal description of situations. This application of logic permits us to evaluate the extent to which the observations support our hunch or hypothesis. But in experimental research the evaluation is given in numerical terms; in everyday problem solving, it is phrased in verbal terms.

The chain which we are attempting to build, then, is not an unfamiliar one. The chain is unfamiliar only when it is applied to a situation not typical of everyday life. As a chain is only as strong as its weakest link, so any argument is only as strong as each of its steps.

It should be noted that this chain of argumentation is a deductive argument. As Lord Hume pointed out many years ago, it is basically impossible to prove an inductive proposition by deductive argument. This gives us the fourth element in the perspective on the research process. With a deductive chain we cannot prove an inductive proposition. Thus it is better to view each experiment as a carefully evaluated instance in which a given proposition validly predicts the experiment’s results, or is invalidated. An inductive proposition is true until we find an instance in which the hypothesis does not predict the experiment’s results. Each experiment is an attempt to find another instance in which the hypothesis does predict accurately. If it should prove unsuccessful, the hunch or inductive proposition must be revised. An inductive proposition builds through the accumulation of a series of situations in which it has been found to predict successfully. As we demonstrate its predictive accuracy in each new instance, we tend to become more certain of its truth.

This in turn suggests a fifth aspect in our perspective on research. Since any instance can only be another confirming argument for an
inductive proposition, we see that a proposition is most useful if it
grows out of a series of previously confirmed propositions or to put
it another way, that it has a theoretical base.

One last aspect of the perspective on research may be gained by
looking at this chain of reasoning. Almost any experiment has some
flaw in it that might possibly invalidate the argument. This is par-
ticularly true of social science research. In reality it is almost never
possible to build a completely tight chain of argumentation. Each
chain is a compromise between what we can do and what we would
ideally wish to do. Our statistical model almost never completely fits.
Our experimental design is never completely tight. We are never sure
that our sampling has not given us a biased sample. In each instance,
we build the best possible chain of argument to show the truth or
falsity of the proposition, but each design represents a compromise
between the ideal and the possible. It is up to each person to evaluate
the design and to determine whether indeed he will accept the evi-
dence which stems from that compromise. In essence, he must ex-
amine the compromise to see whether it is satisfactory to him.

Let us review this perspective on research which we have at-
ttempted to sketch. We have noted that we are building a chain of
argumentation in each experiment. This chain is parallel to the rea-
soning we use in everyday problem-solving. Each experiment is an
attempt to determine whether the prediction of our hypothesis is in-
valid. We cannot by a single deductive chain of argumentation (which
each experiment basically is) prove the hunch or hypothesis which
we have. We can merely give another instance in which the hypo-
thesis escapes invalidation. But even then our chain of argumenta-
tion is not completely tight. It is always a compromise between the
ideal and that which it is realistic to expect in the situations in which
we operate. We must examine each experiment to determine whether
we are willing to accept the compromise which had to be made and
to accept this as new evidence that the hypothesis has indeed escaped
invalidation.

This is quite a different picture from the popular conception of
the way in which research progresses, but it is nonetheless a realistic
picture. When one considers the millions of explanations of phenom-
ena that are possible but false, we realize that the world abounds
with more false than true hypotheses. Thus the value of the process
in winnowing out false hypotheses is certainly not to be discounted.

If this account is something less than perhaps we might hope, it
is all the more important to understand this process in this day and age, when we turn increasingly to research in the social sciences for help in answering our pressing problems. The social sciences tried things out and discarded old methods and explanatory concepts for years on an informal basis. Social science research is a kind of reasoning that brings added precision to an evaluation of those methods and concepts. It formalizes the criteria on which we decide whether to accept or to discard the propositions advanced. It makes public the criteria with clarity and also provides some basis for judging how well they are met. It helps cut through the bramble to a clearer decision. The tighter the research, the better its chain of argumentation, and the more carefully it is built, then the more value it has in providing a basis for decision making.

We have sketched some of the perspective on experimentation, and we have noted that each reader of research must examine the chain of experimentation for himself. This suggests that it would be well for us to examine the various steps in the chain a little more closely.

Let us start with hypotheses. We indicated that an hypothesis is a notion, a hunch, or a guess that something is true about our universe. We have already noted one thing which it is important to look for in an hypothesis or a hunch. Since each experiment is an instance in which an hypothesis is confirmed or disconfirmed, clearly one would be more likely to grant it credence if it is based upon previously confirmed hypotheses. This suggests that ultimately in the field of library science it is desirable to build a series of interrelated laws and propositions about what makes libraries more effective and what makes for better training of librarians. The building of laws or principles, and the testing of hypotheses which lead to new laws and new principles, is the line along which the most desirable kinds of hypotheses are to be found.

In what ways does the formulation of an hypothesis lead to the next step in the chain? The hypothesis contains the terms which must be operationally defined. These terms specify the kinds of phenomena that will be observed. The hypothesis indicates the nature of the relationship between variables to be observed. Thus it suggests the kind of situation in which they should be studied if we are to find such a relationship. This, of course, leads to a definition of experimental design. Finally, the generality with which the hypothesis is to be held suggests the nature of the sample on which we shall wish
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to make our observations. Clear formulation of the hypothesis is thus a step with important implications for the rest of the chain of argument.

The terms in the hypothesis describe the phenomena which must be expressed in operational definitions. What is meant by an operational definition? The term "intelligence" illustrates one common example of an operational definition. Intelligence is nothing we can touch or feel or smell or in other ways subject to our senses. We can observe various acts which we define as exhibiting intelligence. Typically, we use a test situation for this purpose and we define the operations which lead to success on that examination as an operational definition of what we mean by intelligence.

Wherever we can, we quantify our operational definition. Thus we can evaluate how well the individual does on a test situation in terms of words; he did "well" or "poorly." But typically such descriptions do not convey as precisely as numbers how well the individual did. If in contrast we say that the individual had an intelligence quotient of 150, we know him to be an extremely unusual individual, in fact, we can tell in numerical terms how often such a score would typically occur. Quantification also permits us to apply statistical models, and so in experimentation we use quantification as often as possible to permit us to define our terms precisely and to make discriminations as exactly as possible.

We might parenthetically note that new fields of science typically start out with verbal description, moving to descriptive categories and finally to some sort of numerical scales as the field develops into a science. This development can be found historically in the natural sciences, and various social sciences are now in the process of transition. Although I am not acquainted with enough library research to know where your field lies today in this transitional process, it helps perhaps to realize that this kind of progression does exist.

Returning then to our chain of argument, we noted that the hypothesis suggested the generality with which the proposition should apply. But typically we do not investigate the phenomenon with all of the instances or all the people to whom it should apply. These people are thought of as the population, and we study the hypothesis as it applies to only a portion of these instances—a sample of the population. The means of selecting the sample is important, and is one step which has been carefully studied in the chain of argumentation. The manner of selecting a sample has implications for the kind
of statistics which can be used. We cannot go into a discussion of the ways in which samples are chosen here, but suffice it to say that this is one step in the chain which needs to be carefully handled.

The next step is that of experimental design, a key link in the chain. If you could change your library training curriculum so that you turned out better students, how would you be sure that it was this particular change which resulted in the production of these students? Perhaps it was that you had given more effort to the training; perhaps you had obtained new staff; perhaps you had provided additional facilities or texts. There are many possible explanations. Repeated observation of an experimental effect made in situations where we can be aware of other variables which might have caused that effect permit us to eliminate these variables as possibilities. But there are other ways we can rule them out. We may measure the effect of the contaminating variables, create a situation in which these contaminating variables do not occur, or arrange for the contamination to be held constant across the groups to be evaluated. The experimental design permits us to eliminate these alternative explanations and to control contaminating effects; it allows us insofar as possible, to isolate the effects of the experimental variables and measure them cleanly. Clearly this is a critical step in the successful forging of a chain of experimentation. We shall return to this step later and examine it in more detail, but let us proceed to the last step in the chain.

Finally, there is the statistical model which permits us to estimate the likelihood that the experimental effect observed is indeed an unusual one. Unusual in what sense? Unusual in the sense that it exceeds by some specified margin the results which we might expect from the fact that every sample chosen from a population will vary from every other sample and thus yield different experimental results. On occasion the particular sample chosen may have been a rarely occurring one which led to an unusual result; this is a chance that we must take in using statistics. Statistics merely tell us how unusual a particular result is. If the result is so unusual as to occur only rarely because of sampling fluctuation, we tend to believe that the instance which we are observing is likely due to something other than sampling fluctuation. If our chain of experimentation is tight, then we conclude that this is an instance in which the experimental effect that we are looking for has been observed.

In a sense we may think of the statistical model as a control for
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the variability of sampling. It makes it possible for us to measure and estimate the effect of the sampling error. It permits us to estimate the likelihood that the situation which we observed was one which could be typically accounted for by sampling variability. If we find that we cannot account for the studied effect because of sampling error, if our experimental design is tight enough so that we cannot blame contaminating variables, if our operational definitions are acceptable, and if we have used a proper sample of the population to which we wish the generalization to apply, then we can assume that we have another instance in which the hypothesis that we are testing has been verified. This is the nature of the chain of reasoning that we build in the social sciences.

To this point we have tried to gain some perspective on the research process and to examine the steps in the chain of argumentation which permits the process to proceed. We have tried to indicate the place of experimental design in this chain of argumentation. It is a means of devising a situation in which the observations can be made so that various alternative explanations which might otherwise account for the phenomenon in question are ruled out. Now to look in greater detail at this particular step in the chain, to see how a design works. But to do this we need first of all to list some of the kinds of contaminating variables, some of the alternative explanations which might otherwise cause the phenomenon in question to occur but which are not the cause for which we are looking. The list that I shall use has been drawn from a chapter written by Donald Campbell and Julian Stanley entitled "Experimental Design" and published in the Handbook of Research on Teaching which was published in 1963. I would urge that you consult this excellent source for a more complete description of the topics than I can possibly give here.

Let us begin our listing of rival hypotheses with an example. Suppose you are interested in the kind of reference use students make of a library as a result of the kind of teaching to which they are exposed. You are making observations in a number of schools in different communities, and in one of these communities the local television station happens to show a film on the use of the library. This, of course, is an event which is outside of your control but clearly would affect your observations. One might find that the children in this community were more expert in their reference work in the library than those in another community, and one might be led to
infer that this is due to the teaching in the school. This kind of event, which occurs during the experiment and which may affect the observations, is labeled “history” by Campbell and Stanley. It is an example of the kind of rival hypothesis that would account for the observations and lead one to believe that the experimental variable (in this case the kind of teaching) had an effect which it clearly did not have.

Let us examine some other contaminating variables or types of rival hypotheses. The effects of “maturation” processes within the persons observed which occur as a function of the passage of time also can produce effects which could be confused with experimental effect. Suppose one is studying story telling to very young children. Differences in age would result in differences in attention span which might frequently account for the way they respond to stories told them. Here the effect of maturation may be greater than the way the teacher tells the story or the kind of story that is told.

Another effect which is particularly important where we are dealing with two observations, observations before and after an experimental variable has been introduced, is named “testing” by Campbell and Stanley. Here we are concerned with the effects of taking a test on repeated testing; we are particularly concerned with what might be called the practice effect gained by the test taker. Clearly the second time a person takes a test he is more familiar with it and is more likely to do better than the first time. Sometimes, also, he will have had a chance to discuss the test results and determine what is the “approved” or the “correct” answer and so the second testing reflects the “test wisdom” of the test taker rather than the effect of the experimental variable. Clearly this is another class of rival hypotheses that must be controlled.

“Instrumentation” is the class of rival hypotheses that arises because of changes in the way observers view a situation. Observers watching how businesslike students act in the library might use different standards at different times in observing the students. Interviewers trying to find out about reading habits might get different responses because of their own increased familiarity with the interview schedule over a period of time. Shifts in grading standards, learning how to administer a test, learning how to use an observation check list, these all constitute rival hypotheses to the main hypothesis, and they can result in the gathering of data which shows an effect like the experimental effect anticipated.

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"Regression effect" is important where one deals with extreme groups. Suppose a group is picked because they did poorly on some test, a reading test, for instance. On retesting this group at a later date we can predict that they will have a higher average score than previously, not because of the effect of any treatment which might have intervened between testings, or because of the practice effect of the second testing. The change results from the imperfect correspondence of the score on one testing with scores in the second session. Unless we have a perfectly accurate measuring instrument, scores which are very high or very low may be expected to change on retest in the direction of the average scores of the population from which this group was taken. Our social science measures are almost never perfect. Thus, a poor group singled out on the basis of a test does better on retest after treatment, whereas a bright group may appear to have lost ground between pre- and post-test. Both findings are the result of regression effect, rather than of treatment effect. This is a very common finding in the literature, although it is rarely recognized as due to regression. The regression effect should, therefore, be anticipated wherever the selected groups are taken from the extremes of a distribution of scores and then retested on that same or a related measure to determine the effect of some experimental variables.

"Selection" is another source of rival hypotheses. Suppose you have a wonderful new information retrieval system for school libraries which you want to try out. Making it available on a voluntary basis you compare the themes of students who use the retrieval system with those who do not. Is there anything about those who volunteered which makes them special and which might have resulted in their doing better themes anyway? Clearly the different recruitment systems used in making up a sample may result in selecting people who are atypical in some way so that the effect observed is due to "selection" rather than to the experimental variable in question.

"Mortality," or the selective dropping of individuals from a group over the course of an experiment, is another source of rival hypotheses. Campbell and Stanley cite the fact that studies show freshmen women to be more beautiful than seniors. Does education decrease the pulchritude of college coeds? We would be unlikely to admit that this is the case. The rival hypothesis that a selected dropout exists because of marriage seems much more plausible.

Sometimes we have an interaction between one of the sources of rival hypotheses and the treatment effect that we are expecting to
produce. Such is the case when we pretest a group. We call this “interaction of testing and treatment.” If we give a group a pretest, we focus their attention on the characteristics which we hope to change. We are thus more likely to cause increased change with respect to these variables. If you were to pretest students with respect to their knowledge of the Dewey Decimal system, when you later discuss the Dewey Decimal system in class, they are more likely to be alert for information about it than students who were not pretested. There is also likely to be greater retention of this information had you not raised the questions about the Dewey Decimal system as all. This is an example of the interaction between “testing” (in this case pretesting) and the treatment. There are other interaction effects, but we do not have time to discuss them here.

Let us discuss only one other source of rival hypotheses. The very fact that you are running an experiment is frequently the cause of change in the subjects. Many of you know of the Western Electric Company experiments which were done at the Hawthorne plant in Chicago in the 1920’s. They were attempting to find how they could increase production. Whether they increased the lighting or decreased it, whether they improved the working arrangements or made them more awkward, whether they improved the ventilation or made it worse, they found that production went up because the workers felt they were special. The workers felt that they were part of an experimental group. Typically dubbed the “Hawthorne Effect,” Campbell and Stanley use the name “reactive arrangements,” to include the Hawthorne Effect and other aspects of an experimental setting to which the subjects might react. The artificiality of the experimental setting itself often results in an effect which is mistakenly taken to be the result of the experimental variable. The play acting, outguessing, up for inspection, “I am a guinea pig,” or whatever other attitudes are the result of the experimental situation, are all included here.

This is by no means a complete list of all the sources of rival hypotheses. It is enough to give some idea of their nature, however, so that we can see how they are handled by an experimental design. As the final step in this discussion, let us take a common experimental design and see the way in which this design provides some control on rival hypotheses. Let us study the typical control group design with which we are all familiar. In this design we have two groups to which individuals are randomly assigned. We observe these
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two groups at the beginning of the experiment on those variables which we have operationally defined as resulting from the experimental treatment. One of the two groups chosen at random is subjected to some sort of experimental situation; the other is not. We then observe afterwards to determine what, if any, effect the treatment has had.

For example, a group of fifth grade children is assigned randomly to each of two classrooms. A classroom library is available to each of the classrooms, one arranged according to one classification system, the other arranged by a different system. We observe the children's skill in using these classroom libraries for reference work at the beginning of the year and at the end. Let us assume that the only training that these children have in using the library was given by an English teacher who serves both classes. Let us now look at the various sources of rival hypotheses that we have discussed.

Does this design control for "historical" events? In general, I think we can see that it does. Except for those events which might have occurred in one class but not in the other, "history" would be controlled. For instance, television programs instructing the children on use of the library would presumably be observed by as many fifth graders in one room as the other.

What about the effects of "maturation?" Presumably again these would be the same for both of the groups, since if we took a common pool of children and assigned them at random to these two groups, the effects of maturation or growth over the course of the experiment would be the same in the control as in the experimental group. The effects of "testing" similarly would be controlled in the sense that presumably background experience in testing would be equal for the two groups since we randomly assigned them to the control and experimental sections. Both groups would have the same pre- and post-observation experiences, so the effect of the second testing, as well as chances for them to discuss the test, would be comparable for both experimental and control groups.

The effects of "instrumentation" would also be typically controlled in that the observer's increased familiarity with the observation instrument would apply as well to the control group as to the experimental group. We should note, however, that one condition here is that the observer would not know which is the experimental and which is the control group. If the observer happens to be biased for or against the particular effect that one is seeking he might look
harder for it in the experimental group if he knew which group was which.

Even if these were extreme groups, which they happen not to be in our example, the effects of “regression” would be held constant across the groups, since the regression effect for two extreme groups randomly assigned to an experimental and a control session will be the same. The effects of “selection” would be equated between control and experimental groups, provided that the sample was chosen in one step and then assigned randomly to experimental and control groups. Similarly the effects of “mortality” would be the same in control and experimental groups, since presumably such effects as illness would cause children to drop equally out of both control and experimental groups. Should the experimental treatment prove distasteful, however, there might be an interaction between treatment and “mortality” which would cause an uncontrolled source of rival hypotheses.

What about another interaction, that between “testing” and treatment? This is an uncontrolled effect, for only in the experimental group do you have both the conditions of treatment and “testing.” Thus this design does not control for the effect of interaction between “testing” and treatment.

Does it control for “reactive effects?” This depends on how the control group is treated. If the control group thinks that they are special as much as the experimental group does, then we have this control between the two groups. If on the other hand, the experimental group realizes they are experimental but the control group does not, then “reactive effects” may also be a source of rival hypotheses.

Perhaps this is enough of an illustration to indicate the way in which experimental design can control for sources of change which might otherwise be confused with the one we wish to study. We could continue and discuss other experimental designs, and analyze them with respect to this incomplete catalog of rival hypotheses. The Campbell and Stanley chapter does this very well, examining a variety of such designs, as well as describing additional rival hypotheses.

In the short time available, hopefully you have gained some perspective on the research process, seen the function of experimental design in this process, learned some of the variables that can be controlled by experimental design, and seen how experimental design contributes to the chain of argumentation by controlling these variables. Hopefully also this will have stimulated enough interest in the process of experimental research that you will desire to study the
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topic further, and bring experimental methods into your own field and further the stature of library science as a science.

Reference

Inadequacies in Research Proposals

GERALD R. SMITH

The March 1963, issue of Library Research in Progress reported that in 1961 alone a total of $1,100,000 was spent on library research in this country. This figure stands in sharp contrast to the total of $600,000 made available for the three-year period from 1955 to 1957, and it suggests a growing awareness of the need for further research in this important field.

Several events during the past eight years have served both as a stimulus to and a reflection of this awareness. In 1956 the Ford Foundation established the Council on Library Resources with a grant of $5 million to be expended over a five-year period. This program was extended for another seven to ten years with a grant of $8 million in 1961. Since their inception in 1957 and 1958 respectively, the Cooperative Research Branch and the Educational Media Branch of the Office of Education have provided over $300,000 for research in library science. The Library Services Act has devoted a similar amount to surveys and research. Finally, this conference itself is perhaps the best indication of a heightened interest in research in this field.

From all indications, then, it appears likely that the funds for library research will continue to increase. Whether or not persons interested in this research are able to tap the resources that will be made available will depend substantially upon their ability to present proposals which deal with significant problems and which propose appropriate research designs for examining them.

Proposal preparation, or the art of grantsmanship, as it is sometimes called, is only a means to an end and while it is sometimes scorned by those who would be about the business of research, such scorn is partly the result of a misconception of proposal writing as a process completely detached from the process of research. This viewpoint is short-sighted since it emphasizes the selling of an idea rather than

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the generation and development of an idea. It often results in a hastily drawn proposal which offers little likelihood of obtaining support. By way of contrast, the preparation of the proposal can be thought of as the initial planning step in the research process, which, if done well, will not only enhance one's chances of getting the cold cash but will also improve the quality of the research. It is with this latter viewpoint in mind, then, that this paper will attempt to deal with some of the inadequacies found in research proposals.

The discussion is divided into five major sections which correspond for the most part with the format of a research proposal. While the format used is that of the Cooperative Research Program, it is sufficiently similar to what is typically required by funding agencies to be of general value. The sections are (1) problem inadequacies, (2) inadequacies in the review of related research, (3) inadequacies in the objectives, (4) procedural inadequacies, and (5) communication inadequacies.

All of these inadequacies, it should be stressed, are inadequacies of research proposals, and while I feel there would be some correlation between these inadequacies and those found in the research process itself, no empirical evidence is available to substantiate this. Furthermore, some judgments must be made on the basis of less evidence than would be available from the research itself. Also, the lack of an explicit statement in a research proposal, while often considered an inadequacy, does not mean that the initiator of the proposal is ignorant about the point in question. It does mean, however, that he has failed to display a crucial piece of information or know-how in the proposal. Finally, although many of the illustrations used in this paper have been drawn from the field of library research, they are by no means unique to this field. In fact, a study which I conducted on a random sample of proposals from the Cooperative Research Program reveals similar inadequacies in proposals dealing with many aspects of education. With these cautions in mind, let us examine the inadequacies.

Problem Inadequacies

The four major inadequacies that occur within the statement of the problem are (1) the problem lacks universal significance, (2) the problem statement is oriented toward practice, (3) the problem is unclear, undelimited, or incomplete, and (4) the theoretical framework for the study is inadequate or lacking.
The question of whether or not a problem is significant is by no means an easy one to answer. As this paper was being prepared, an article in the Washington Star attributed remarks to a United States senator which were critical of federal support for Harlow's work on the "Nature and Development of the Affectional Relationship of the Infant Monkey and His Mother," and to a study of the sex life of the gypsy moth. To the senator, both of these studies dealt with trivial, insignificant problems. Yet, the first could have important implications for the child rearing practices of human beings, and the second could provide clues to the control of the gypsy moth and the damage it causes to the agricultural industry. This observation is not intended to deny the senator his opinion, but simply to point out the difficulty of judging the significance of a research idea.

Perhaps the first distinction to be made is between inherent and contextual significance. Are there some topics which are inherently insignificant and if so, by what criteria do we identify them? By the same token, are there topics which are not inherently insignificant, but which are made so by the way they are presented? The answers to these questions provide a basis for further discussion.

While the rationale cannot be developed fully within the space of this paper, there appear to be some problems which are inherently less significant than others, and the question of inherent significance must be decided on the basis of the universality of a problem's appeal. A problem whose importance is primarily of value to a given time, place, and audience is only of "particular significance." On the other hand, a problem which promises to have value beyond the immediate setting in which it takes place is one of "universal significance." These two concepts of particular and universal significance represent the opposite ends of a single continuum. This implies that there may be some element of universality in all proposals of particular significance and vice versa. It should be stressed that the limits of time, place, and audience are unrelated to sample generalizability, which also affects a problem's significance. A study could be restricted to blind students, for example, and have universality simply because its findings are not limited to the particular group of blind students under study.

Now let us examine two illustrations of problems from the March 1963 issue of Library Research in Progress. They are: (1.) The Needs of the Calaveras County (Calif.) Free Library, and (2.) Suburban
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Use of the Core City Book Collection in Greater Kansas City, Missouri-Kansas.

Although a specific locality is mentioned in each of these, they would be placed at different points along the particular-universal continuum. The first, on the needs of Calaveras County Free Library, is considered primarily of particular significance because it probably would offer few findings that would be of value for libraries throughout the country, even those within similar counties. The implications of the second example for urban libraries throughout the country hold far more promise, and this study would be placed further along the continuum toward the universal end.

So much for problems which are inherently limited in significance. Other problems, not inherently limited, become of limited value when they are cast in the context of a specific study. Research problems that deal with teaching effectiveness, for example, could hardly be reviewed as having limited significance. Yet, they become limited in significance when they are cast in a context which promises to yield little beyond what is already known. For example, a number of studies have attempted without much success to administer a wide variety of tests to teachers and to relate the scores obtained to some criterion of teaching effectiveness. A proposal, then, which stated the problem of teaching effectiveness in similar terms would have limited significance unless it also offered some reason for believing it would work when others had failed. The generalizability of the sample, which was alluded to earlier, also illustrates a problem whose significance is limited by the approach used.

Action-Oriented Problems. Librarianship, like medicine, administration, teaching and law began as the practice of a profession, and the emphasis on practice continues to cause difficulties for those who are interested in research. This is particularly true for those professions like teaching and librarianship that have just begun to take an interest in research. The research personnel in these fields have too often had a background and experience which equipped them for practice rather than research. As a result, the problems they identify and the approaches they adopt are those of practitioners rather than researchers.

Action-oriented problems are those which call for an immediate decision or action on the part of those concerned with the problem. A teacher is faced with a student who is having difficulties. He wants
to provide reading instruction which will begin where the student is and help him to make progress as rapidly as possible. He cannot take time to define in careful detail four or five possible approaches and then to evaluate them in a controlled experiment before selecting one. Consequently, he selects an approach which his experience tells him has been successful with similar types of students in the past.

A researcher sometimes sees a similar problem, but he views it not in terms of “Johnny’s reading needs,” but in terms of “students with certain characteristics,” and his proposal is not designed to help a specific Johnny now but to find out something that might be of value to the teachers of future Johnnies. All of this is by way of saying that those who try to serve immediate needs now and to discover at the same time something about future needs are confusing the aims of teaching and research, probably to the detriment of both.

To illustrate this confusion within the field of librarianship, two hypothetical proposals need to be described. One proposal has as its purpose the improvement of training for librarians. To this end the present program is reviewed and suggestions are made. Some courses are dropped, others are added, and still others are revised. Another proposal is also interested in the improvement of training for librarians. A new program is developed and students are selected at random for training in this program and the conventional one which had similar objectives. Various measures of knowledge and skills associated with librarianship are administered to the students who have taken both programs to determine which is the most effective. The first illustrates the process of improving a training program, while the second is research. The difference is not just the evaluation which was included; it is the question of purpose which underlies the activity. The first is concerned with an immediate improvement of a specific program while the second is more interested in the characteristics of effective training programs. While this distinction is admittedly not always an easy one to make, it is one that must be made if research and practice are not to be continually confused.

Unclear, Undelimited, and Incomplete Problems. The third problem weakness to be considered is that of the unclear, undelimited, or incomplete problem statement. While clarity, delimitation, and completeness are not necessarily the same concepts, they occur so frequently together and are manifested in such similar ways that it seems reasonable to consider them together.

The lack of precision in language is one of the indicators of an
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unclear problem. Its effect can be illustrated by the debate over central versus departmental libraries. (The terms “centralized” or “consolidated” on the one hand and “decentralized” on the other, are also used). A researcher who is interested in comparing these two forms of library service must be careful that the terms central and departmental do not lure him into the trap of dichotomous thinking—a library is either a central library or a departmental one. Not only is there no advantage, save that of false simplicity, in dividing library systems into two such camps, but there is actually some danger in doing so. The researcher may mislead himself in believing that only these two types exist. In reality, many library systems have characteristics of both types. In fact, Marron, writing in *Physics Today*, suggests that the selection of either extreme of centralization or decentralization would result in an absurd situation. “What could be more absurd,” he asks, “than a large well-stocked, well-run library with no users?” At the same time, he suggests that “it is equally absurd to expect departmental libraries to acquire and manage all the information requirements of the groups they serve.” His recommendation, then, is that library systems adopt the most useful characteristics of both of these types. The point of this illustration, however, is not whether central libraries, departmental libraries, or some combination of both are to be recommended, but whether any researcher interested in this problem would not do well to begin by describing as carefully as possible the patterns of library service that are used. If he does not consider this difficulty in preparing the proposal, but instead acts as if there are only two distinct types of library systems, then this problem statement will be over-simplified, unclear, and incomplete.

Inadequate Theoretical Base. A final difficulty of major importance in the problem section of research proposals is the inadequate theoretical framework. Its inclusion within the discussion of the problem is somewhat arbitrary, and it might have been considered as easily under the review of related research. However, since problems are often stated in relation to a theoretical backdrop, it is not out of place here.

The inadequate theoretical framework, like the problem of limited significance, is not an either-or matter. Some problems do not require theoretical frameworks, and would look absurd if cast in such terms. However, few would quarrel with the observation that those problems which can be stated in terms of a theoretical framework should
be. The problem which is described in terms of a theoretical framework offers an advantage over one that is not. It not only enables the researcher to uncover a specific piece of new knowledge, it also enables him to integrate that knowledge into a conceptual framework and to determine thereby the fruitfulness of that framework for explaining the problem. In a sense, the question of theoretical significance is but an aspect of general problem significance for it deals with the same issue of particular versus universal knowledge.

With regard to a theoretical framework, library research is not greatly different from the rest of research related to education. From what admittedly was a rather cursory examination of several issues of Library Research in Progress, and of the library research proposals submitted to the Cooperative Research Program, it appears that very little of the research in this field makes any reference to theory.

This statement does not deny the fact that for much of what is being done, a theory would be a useless appendage. The point being made, however, is that there are theories which could be of value in the study of library problems, and that if more library researchers were conversant with these theoretical positions, they might be identifying completely different problems for study. The general area of communication theory and the specific aspect of communication theory known as information theory are examples of such theories.

_Inadequacies in the Review of Related Research_

Apparently the review of related research is one of the most misunderstood parts of the research process. Institutions of higher education have long encouraged graduate students to examine the research literature in order to determine whether or not the study they have in mind has been done before. This traditional purpose has been called into question recently. Lindvall, for example, has made the observation that it is "... doubtful that any candidate can ever discover references to any considerable portion of the studies that have been carried out in his area of interest." A study by Tauber and Lilley reported findings which support this observation.

Others have suggested that the review be carried out for different purposes. Travers feels, for example, that the review of research should provide an overview of the current framework of theory in a problem area. He expects the student—and this could certainly apply to a more experienced researcher—to extract from the review
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a theory in terms of which he plans to operate. Lindvall\textsuperscript{6} concurs in this observation and mentions also the need to establish the exact relationship between the research reviewed and the project to be undertaken. That the review should present a critical analysis of the cited research is often implied and sometimes made explicit by those who write about the process of research. Good and Scates,\textsuperscript{7} for instance, think the reviewer should call attention to hidden weaknesses, assumptions that are not made explicit, crucial factors that are not controlled or measured, and conclusions that do not follow from the facts. Considered together, these isolated comments suggest that the review of related research serves the following purposes:

1. It offers some evidence that the study has not been done before.
2. It demonstrates the investigator's knowledge of previous research in the problem area and related areas.
3. It suggests a rationale and hypotheses for the reviewer's own research.
4. It evaluates the strengths and weaknesses of previous studies related to the reviewer's problem area.
5. It describes the relationship between what has been done in the past and the reviewer's proposed efforts.

In a recent study this author examined approximately 100 Cooperative Research proposals dealing with a variety of topics related to education. With regard to the inadequacies of the review, he found the following:

1. No review was provided in 8 per cent of the proposals, despite a specific request that this be done.
2. The critical examination of previous research was judged inadequate in 72 per cent of the proposals.
3. The review failed to demonstrate a relationship between past research and the current proposal in 54 per cent of the sample.
4. The review reflected an inadequate knowledge of related research in 45 per cent of the proposals.

From the foregoing evidence, it seems clear that those who prepare proposals do not see the need for a review of related research or do not know what is to be included. If research is truly to be a cumulative process, building upon the accomplishments of the past, the importance of the review of related research must be better understood.
The purpose of the statement of objectives in a research proposal is to translate the problem into a specific research goal or goals. In some cases the research goals take the form of objectives; in others, hypotheses or questions. Frequently, a proposal employs some combination of objectives, hypotheses, and questions. In discussing inadequacies in this section, the term objectives will be used arbitrarily to represent all three unless specific distinctions are made.

Weaknesses in objectives usually take one of the following forms: (1) The objectives are not made explicit. (2) The objectives are unclear. (3) The objectives lack specificity. (4) The objectives are not expressed in operational terms. Let us consider each of these in turn.

The first inadequacy suggests that for a given problem, a large number of objectives is possible and that it is not sufficient to simply state a problem and leave it to the reader to guess what the objectives will be. As strange as it may seem, however, there are proposals that do precisely that. Consider the following paragraph from the problem statement of a proposal which focused on pre-retirement programs.

We have not adequately studied (a) the impact of such programs on the retirees—and the difference such programs make for the individual after retirement; (b) the variations in treatment depending upon auspices, content, and method, and their varying significance; (c) the proper role within the preparation-for-retirement framework for the two institutionalized agents dealing most directly with these problems, namely management groups and labor unions.

It is clear from this statement that each of the mentioned aspects of this problem could be turned into a research goal for study. However, the proposal never explicitly states that one, two, or all three of them represent the study objectives. As a result, the reader must attempt to construct the objectives from the remainder of the proposal. Clearly, something as important as the objectives of a project cannot be left to the reader.

While the lack of clarity in the objectives of proposals can be described in several ways, two major types need to be distinguished for the purposes of this paper. The first has been designated "expressive clarity," and the second, "technical clarity." While this distinction is not always easy to make because the failure to be clear in both of these areas is frequently observed in proposals, such a dis-
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tinction is considered helpful in understanding why objectives are judged deficient with regard to clarity. Expressive clarity refers essentially to the author's choice of words. Have the words been carefully chosen to convey the exact meaning intended or does the initiator appear to have selected the first word that came to mind? The difficulty, incidentally, is not reduced by the use of currently popular terms such as ungraded school, team teaching, consolidated libraries, and individualized instruction. If anything, popular terms only cloud the issue further, for they are usually fraught with a variety of interpretations and meanings. Any terms used, whether familiar or not, should be defined in the context of the proposed study.

The second type of clarity, which is designated technical clarity, goes beyond the definition of terms and takes into consideration the referents of the terms or the technical concepts that are implied by them. In a word, we are making the kind of distinction here which Bierstedt \(^8\) makes with regard to real and nominal definitions. Nominal definitions tell us nothing about the real world; they simply provide us with an understanding of what a particular researcher means when he uses the word. Real definitions, on the other hand, actually "... assert something about the referrent of the concept defined." \(^9\) In this regard, they are very much like hypotheses. Expressive clarity, then, asks merely, has the author been clear in this arbitrary choice of words. Technical clarity, on the other hand asks, are the concepts employed in harmony with the real world, as it is presently understood. Needless to say, being clear in both ways is of utmost importance in the preparation of a proposal.

A third inadequacy in the statement of the objectives is that they frequently lack specificity. The question of optimal specificity is a relative one. Objectives can be so broadly defined that when the study is completed, little gain in knowledge has accrued, or they can be so narrowly defined that the knowledge gained has little generalizability. The hope is that the researcher will select a level of specificity that is somewhat between the two extremes. The tendency to err, however, appears to be much more frequently in the direction of generality. The following general hypothesis is indicative of this tendency:

Children of elementary school age are capable of much greater intellectual activity, accomplishment, and sustained interests than is now asked for or obtained in elementary schools.
GERALD R. SMITH

The confirmation of such an hypothesis will tell us nothing we do not already have much evidence for, and hence its generality is beyond the level of usefulness. To determine whether or not he has achieved a near optimal level of specificity in stating objectives, the initiator of a proposal should ask himself what new knowledge and understanding he will have of the problem area by the achievement of these objectives.

The final inadequacy to be considered under the discussion of objectives is the failure to state objectives in operational terms. In other words, the initiator of the proposal has not provided the reader with a clear indication of what operations will be involved in the achievement of the objectives. In this sense, the objectives of the study should foreshadow the procedures to be used. It goes without saying, too, that stating the objectives in operational terms not only helps the reader to determine the feasibility of the objectives, but it is an excellent way for the researcher to clarify his own thinking.

In concluding this section on objectives, it should be pointed out that the four inadequacies are frequently interrelated. Thus if objectives are stated in terms of the operations to be employed in achieving them, their specificity and clarity will undoubtedly be improved also.

Procedural Inadequacies

If one were to go into all of the specific inadequacies in the procedural section of proposals, the number discussed would be legion. Each major method of research bears its own inadequacies, and there are those that are common to several methods. Within the scope of this paper, it is possible to discuss only four major types of procedural inadequacies: sampling inadequacies, instrumentation inadequacies, statistical inadequacies, and other procedural activities.

Sampling Inadequacies. In the study of a selected sample of Cooperative Research proposals mentioned earlier, sampling inadequacies were among the most frequently occurring types. One of the most obvious inadequacies is the lack of a clear sampling plan. In some proposals this meant simply that the sampling plan was not described; in others, it was described in highly general terms. Consider the following example: "sampling techniques will be used to measure attitudes and opinions of people from all walks of life, including students, teachers, community leaders, and public officials." No matter how straight-forward and simple a study appears to be,
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it requires careful consideration of all of its aspects, including the sampling plan.

One of the basic questions which must be asked and answered is this: To what population will the results be generalizable? In this connection, it should be made clear that the phrase "representative sample" means nothing unless one knows what population it is intended to represent. Very few proposals—and this is not just characteristic of library research—describe in explicit terms the population from which the sample will be drawn.

Convenience samples are quite frequently used. A convenience sample is one which just happens to be available. Thus if a researcher is interested in the staffing patterns of public libraries and he selects those that are adjacent to his university, he is making use of a convenience sample. Convenience and economy are, of course, legitimate considerations in selecting a sample, but they must not become the overriding considerations. The sample should be selected with the purposes of the study in mind. If a convenient sample can achieve those purposes as well as a more distant one, then by all means employ the convenient sample. Many proposals, however, appear to use convenience samples solely for convenience sake and in so doing defeat the very purpose of selecting a sample.

In proposals involving experimental design, it is important to select both the experimental and control groups from the same population. Otherwise, when the experiment is finished and differences in the two groups are revealed, it will be impossible to attribute the differences to the experimental treatments which were administered to the groups. A particularly dubious practice with experimental studies is the use of intact groups. Intact groups are those which already exist before an experiment is contemplated.

Supposing, for example, one wants to compare the reading achievement, types and number of books read, and several other dimensions of reading habits in communities which have elementary schools with libraries and those that do not. The assumption that is being made, whether stated or not, is that whatever differences occur are the result of the availability of school libraries. Such an assumption is not justified. There might be differences in the achievement and intelligence of students in the different communities. Also, there are several less tangible, but not necessarily less important, variables that need to be considered in using such intact groups. Perhaps the most important and most obvious is the socioeconomic and educational
level of the communities. The existence of libraries in the schools of one and not in another may be the manifestation of differences in the communities. Perhaps books and reading are highly valued in one community and not in the other. If by some stroke of misfortune the libraries were destroyed, the communities which had them might continue to produce children with better reading habits simply because the parents treasured books and encouraged their children to read and to enjoy them.

Regardless of how far-fetched this illustration may be, the point is clear that the use of intact groups presents special problems. Alternative sampling procedures should always be explored as possibilities.

Instrumentation Inadequacies. Once the objectives, hypotheses, or questions of a study have been decided upon, a decision must be made about the types of data needed to achieve the objectives, test the hypotheses, or answer the questions. The data, in turn, will determine the instrumentation to be employed. Many proposals submitted to the Cooperative Research Program do not provide a sufficient description of the instrumentation to evaluate its appropriateness for the objectives of the study. Indicating that a questionnaire or depth interview will be employed is about as helpful as stating that appropriate instruments will be used. Neither gives the reviewer enough specificity to render a reasonable judgment of the proposal's merits. When asked about the degree of specificity that is desirable in proposals, the staff of Cooperative Research invariably replies, "the more the better." It should be emphasized too, however, that the specificity in proposals is used for review purposes only. If the proposal is approved, sufficient flexibility is built into the contract to enable the investigator to take advantage of insights gained during the course of the research.

Another point bears emphasis. Whenever the instrumentation to be used in a study includes a new or revised instrument which is not widely available, a copy of the instrument, or at least sample items from it, should be attached to the proposal. Again, this will enable the reviewers to make a better evaluation of the proposed study.

Statistical Inadequacies. As with the instrumentation, it is difficult to determine statistical inadequacies in proposals simply because most proposals provide so very little detail on the statistical treatment of the data. Some merely resort to such stock phrases as, "appropriate statistical techniques will be employed." While no empirical evidence
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is available to explain this phenomenon, the author believes that it is probably prompted by (1) either a feeling of inadequacy on the part of the initiator with regard to statistical procedures, or (2) the probability that he has not given much thought to the statistical techniques to be used. The second, of course, could stem from the first, from unnecessary haste in preparing the proposal, or from other causes. For a reason which is difficult to identify, the substantive specialists who are interested in research appear to be more defensive about their knowledge of statistics than the statisticians are about their knowledge of the subject matter. If the substantive specialists would stop apologizing for their inadequate knowledge of statistics and start employing statistical consultants before proposals were submitted, many proposers would greatly strengthen both the research and their chances of obtaining support. As this paragraph implies, the lack of detail on statistical treatment of the data is the most frequent statistical weakness in proposals.

Other Procedural Inadequacies. Although time and space restrictions will not permit a thorough discussion of other technical inadequacies that are present in proposals, a brief mention of some of the more frequent and serious is in order. The anticipated influence of the Hawthorne Effect in educational research can frequently be identified in research proposals. The Hawthorne Effect did not originate in education but was coined to describe a phenomenon observed in a series of studies conducted from 1927 to 1932 at the Hawthorne Plant of the Western Electric Company in Chicago. As used here, the phrase refers to any study in which a group of subjects either would have received or would have been led to believe they had received special treatment, apart from the experimental treatment, that had not been accorded to the control group. Thus, the teacher who says to a group of students, "You are in an experiment and we want to see how well you do," may be influencing the results unless similar remarks are made to the control group.

Questionable assumptions often appear to be implicit in research proposals. They include (1) assumptions about causation (Does a high positive correlation between two phenomena mean that one causes the other?); (2) assumptions which fail to consider predisposing conditions (Does the lack of a library result in poor achievement or are they both the result of the attitudes and background of the people in the community?); and (3) assumptions about the nature of the data (Are non-parametric statistics proposed when there
are reasons for believing that parametric statistics could be employed, thus producing a more powerful test of the hypothesis.

**Communication Inadequacies**

There are several inadequacies which are associated with the initiator's ability to communicate effectively with his reader. The frequent or extended use of unscientific language—naive expressions, vague phrases, exaggerated statements—often create the impression that the author of a proposal is not approaching the problem with the detached objectivity that is essential to good research. The failure to provide essential details has already been alluded to in previous sections. This failure is perhaps the most frequent inadequacy in research proposals. The writer of the proposal often appears to expect the reader to read between the lines and supply the missing information. Finally, the lack of conciseness that is apparent in some proposals makes it difficult for the reviewers to follow the major line of development. In summary, then, it is quite important for the initiator of a proposal to pay particular attention to the precision in wording which is so essential to effective communication.

**Some Observations**

Instead of summarizing the discussion of inadequacies presented in this paper, I would like to conclude with twelve observations. Some of these may appear to be elementary, even to the point of being trite. Nevertheless, if these observations were taken seriously and an earnest effort were made to consider them, educational research and the art of proposal writing would undergo considerable improvement. The observations are:

1. Attention to details is the hallmark of an excellent researcher and an effective proposal writer.
2. Proposal writing is not an end in itself; it is a step in the total research process.
3. An extensive period of time should be allowed for the germination and growth of a research idea.
4. The substantive specialist should not hesitate to ask for help from design and statistical consultants and from funding agency personnel.
5. Thorough planning for a study should be done before the research is begun and preferably before the proposal is written.
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6. A careful review of the research literature should be made while the problem is under development.

7. The problem should be whittled down to manageable proportions before it is tackled.

8. Hypotheses or questions should be used in preference to objectives. They generally require greater care in their statement.

9. Don't expect a reviewer to give you the benefit of the doubt. Be explicit whenever possible.

10. If possible, a theoretical position from which to approach the problem should be stated.

11. All key terms should be defined.

12. Practice and research in a problem area should be kept distinct.

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9. Ibid.
The Methodology and Results of the Monteith Pilot Project

PATRICIA B. KNAPP

This paper reports on only one of several aspects of the Monteith Pilot Project which has interest as an innovation in library research. Other aspects of the research will be covered in the final report to the Cooperative Research Program, which is now nearing completion.¹ The one aspect to be discussed here, and discussed in some detail, is the analysis of the social structure in which the Project was carried on.

Research in librarianship draws upon the methods and techniques developed in other fields and applies them to library problems. The Monteith research reported here uses the methods of anthropology and sociology. There is nothing new, of course, in the use of sociological methods in library research. The social survey technique, which is borrowed from sociology, has probably been used more than any other in the study of library problems. But the methods used in the sociological analysis of processes in a single institution have rarely been applied in library investigations. Such methods were clearly called for in the Monteith Pilot Project.

The long-range goal of the Monteith Library Program is that of helping undergraduate students attain a high level of competence in the use of the library. In the pilot phase of our program we proposed to concern ourselves not with obtaining evidence on the validity of library competence as an objective of undergraduate education nor with the potential contribution of such competence to the achievement of other educational objectives. We were interested in learning what we could about library competence, about what it involves, about what we mean when we use the term. At this stage of our work, how-

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However, we were content to limit ourselves to very tentative investigations into these questions.

We started our work with the conviction that students attain library competence, however it is defined, only when they actually use the library and only when their use of it is significantly related to what they consider the real business of college, that is, to courses of substantive content. Since it is only through the teaching faculty that library experiences can be related to regular course work, we undertook to set up a social structure in which librarians could work with teaching faculty in developing a curriculum in which student use of the library was an integral element. The primary objective of our research, therefore, was to focus our attention firmly upon the relations between faculty and librarians as they changed and developed through the two years of the Pilot Project.

The analysis of social structure was the responsibility, exclusively, of our project research analyst Carol Ballingall, an anthropologist who has had much training and experience in sociological research. She is a member of the teaching staff of the social sciences division of Monteith College, having served in that capacity half-time while the Library Project was in operation. It is Ballingall's analysis that is reported here, but the report, itself, is my own. It stems from reading, from discussions with Ballingall and with other colleagues at Monteith, and from my own experience. I have assumed that librarians would be interested in the observations, the reflections, and the comments of a librarian, a nonspecialist in the social sciences.

First, however, some background information is necessary. Monteith College, which was founded in 1959 with assistance from the Ford Foundation, is one of the eleven colleges of Wayne State University in Detroit. It is a small college, admitting less than 400 freshmen each year. At present the enrollment is about 700 and the faculty numbers about 30. The basic courses in the Monteith curriculum are required of every Monteith student. They take about half of the student's time through his four years in college; the other half he spends on his pre-professional, specialized, or advanced studies. A student planning to enter the medical school, for example, begins his pre-medical work in his freshman year and continues it concurrently with his Monteith courses through the rest of his undergraduate career. The Monteith curriculum begins in the freshman year with a year-and-a-half course sequence in the social sciences and a two-year course sequence in the natural sciences. A year-and-a-half course se-
quence in the humanities begins in the middle of the sophomore year. A colloquium in the senior year draws on all three areas, and a substantial senior essay is required of every student.

The teaching staff of the college is organized into three divisions, each of which is responsible for one of the three basic course sequences. The courses are staff-planned and staff-taught. Each member of a staff shares in the divisional responsibility for the two lectures and is individually responsible for the two discussion sections presented each week in each course. The discussion sections are limited to twelve students in the freshman year, but they increase in size through each class level. It is a stated aim of the college to foster in the student an increasing capacity for independent study. Thus the freshman receives a great deal of faculty attention, but he is expected to work more and more on his own as he proceeds through college. Every student is required to take the final segment of one of the basic courses without attending the discussion sections, though he may attend the lectures, and students are generally encouraged to take any course independently if they feel competent to do so.

All of these features of Monteith College made it seem an ideal setting in which to develop an integrated program of library instruction and course work. Because the faculty was new, we would not have to overcome old habits. Because the courses were to be staff-planned and staff-taught, we were not obliged to deal with instructors individually. We were in on the ground floor as the actual planning of new courses began. And we benefited from the commitment to the idea of independent study since surely this implied an important role for the library. (It should be understood, by the way, that Monteith has no library of its own. The students use the general facilities, including the libraries, of the University.)

Planning for the Library Project began as soon as faculty members began to assemble in the summer of 1959. A proposal to the Cooperative Research Branch of the Office of Education was approved in March 1960, and the pilot project began officially in April. The proposal called for a project staff consisting of a director, serving half-time, a research analyst, also half-time, a full-time project librarian and a number of graduate students, who were to work under the supervision of the project librarian to provide bibliographical services to the faculty. All three principal members of the project staff were to participate in the course-planning deliberations of the three di-
visional teaching staffs of the college. We were to begin in the fall of 1960 by working with the social sciences division. Beginning in the spring and continuing into the fall semester of 1961, we were to work also with the natural sciences and the humanities divisions. Thus the action phase of the project was to extend through three semesters, ending in the spring of 1962. A fourth semester was to be devoted to analysis and reporting.

The General Nature of Social Structure Research

In essence, social structure research involves the examination of a particular situation or institution in the light of certain potentially relevant models which may serve to highlight the many values and activities perceived. The models serve as convenient approximations which allow the researcher to grasp a given situation rapidly and to categorize it properly. Once the researcher has found the appropriate category, he knows what kinds of behavior he can expect to observe. After a remarkably short period of actual contact, he is able to frame questions which will bring pertinent answers about the characteristics of the particular situation he is analyzing.

This kind of research derives from both sociology and anthropology, or, more precisely, from an area of study in which there is considerable overlapping between the two. As sociology, the study falls into the category of institutional sociology and, more specifically, into that branch of institutional sociology which is concerned with the study of formal organizations. As anthropology, the study falls into the area of social anthropology of the structural type. The primary discipline of our research analyst is social anthropology. Her methods, therefore, were inevitably shaped by certain characteristics of this field.

Anthropology is holistic; it strives to see a social unit as a whole. The anthropologist most often uses nonquantitative methods. He looks for "regularities," "configuration," and "pattern" in the whole. Most anthropologists attempt to approach the social unit without preconceptions. Some make a point of avoiding hypotheses to be tested. They strive for an "inside view," distorted as little as possible by their own personal and cultural biases. For these reasons, the anthropologist is inclusive in his gathering of data. He attempts to encompass everything in his notes on observation, in his recording of interviews, in his collection of artifacts and documents. However, his perception and
consequently, his selection of data, is inevitably influenced by concepts which have theoretical weight, concepts which have proved meaningful in anthropological studies. His analysis, moreover, involves a great deal of systematic working and reworking of the data collected. 

The Academic Institution as a Formal Organization

The study of formal organizations has been much influenced by the classic statement of Max Weber on the nature of bureaucracy. The features of bureaucracy as Weber enumerates them include a clear-cut division of labor and a high degree of specialization, the organization of offices into a hierarchical structure, behavior governed in accordance with formal rules and procedures, the expectation of an impersonal relationship between officials and clients, and a career orientation of staff.

Like practically all modern large-scale organizations, colleges are bureaucratically administered, and a small college imbedded in a huge university faces not only its own bureaucratic administrative structure but also the bureaucratic demands of the giant institution of which it is a part. In the academic institution, however, the tendency toward bureaucracy is always tempered by the ancient tradition of the university as a community of scholars. In Monteith, moreover, this tradition was deliberately emphasized; so that we find all the features characteristic of the bureaucracy considerably modified in this setting. So, for instance, while a division of labor and a degree of specialization is reflected in the organization of the teaching staff into three divisions, there is no departmentalization according to discipline and interdivisional studies are fostered. The de-emphasis on hierarchy is apparent in the fact that the policy-making Administrative Council is made up of the chairmen of the three divisions, each of whom is in close contact with his respective teaching staff. Very little hierarchical structure has developed within the divisional staffs partly because practically all instructors started at the same time and partly because the development of a staff-taught course fostered a sense of colleagueship. Bureaucratic rules and procedures do govern some Monteith activities, but such formalities are likely to have emanated from the bureaucracy of the University rather than from within the College, where flexibility and rule-by-consensus are cherished.

The impersonality of the official-client relationship is less likely to
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appear in the academic institution than in such bureaucracies as the unemployment service or the social service agency. It is particularly minimized at Monteith because the College has always been committed to the aim of creating a small-college atmosphere. The career orientation of the college instructor generally involves a strong identification with a specialized field. At Monteith the interdisciplinary staff group pulls in the opposite direction. Relatively few Monteith instructors have even attempted to make contacts with their opposite numbers in the College of Liberal Arts. Thus the Monteith situation has strong collegial aspects which might recall earlier patterns of the English common room where every member was a peer, where tolerance of eccentricity did not exclude vigorous debate of ideas, where each person acted when outside the common room as an independent, autonomous scholar, responsible only to the judgment of his peers and of history.

But Monteith College exists, nevertheless, as a formal organization. The formal organization is the context in which the college teacher must function. Like the doctor, who needs a hospital, the academic intellectual needs the university to provide him with students, classrooms, laboratories, a library, an office, and a salary. He must give up some of the freedom of action of the free-lance artist or writer, though not so much as the civil servant or the technician. He must find acceptance among his peers who expect him to be independent and autonomous. He must regulate his activity to the extent that his students have a reasonable expectation of seeing him at class time, hearing his thoughts on roughly the areas he is scheduled to cover, receiving his criticism and evaluation of their performance. But how the man teaches, the standards he sets for the performance of his students, these are matters ordinarily thought of as entirely his own business. Only extraordinary infractions of expectations will be noticed by peers, who will, in any case, tend to defend his, and potentially their own, individuality and style as a matter of academic freedom.

In short, each of the three models is partly reflected in the Monteith situation: (1) the model of the bureaucracy, (2) the model of the collegial organization, and (3) the model of the free and independent teacher. The Library Project faced the challenge of coming to terms with this hybrid creature. Our structural analysis reveals the lessons we learned through two years of trial and error before we finally achieved a moderate acceptance.

[89]
The analysis of our experiences in the Pilot Project was based on three kinds of data: notes on observation, transcriptions of interviews, and transcriptions of tape-recorded reminiscences. The research analyst kept detailed notes on her observation of every formal and informal meeting which involved project staff members along with faculty individuals or groups. Three series of interviews with the faculty were conducted, one at the beginning, one in the middle, and one at the end of the Project. In addition, Ballingall and I each dictated a lengthy reminiscence, about forty typewritten pages, covering the entire period of the Project. We attempted to recall our own changing views with regard to it as well as our estimate of our relationships with each individual faculty member at every stage in the enterprise.

This voluminous body of data, approximately four file-cabinet drawers full, was systematically examined and re-examined by the research analyst as she looked for regularities and deviations in the many patterns of relationship which appeared in the Monteith structure. This analysis resulted in the identification of four characteristics which seem to have been particularly significant for the development of the Library Project. Each of these characteristics is related to concepts implied in the discussion, above, of the academic institution as a formal organization, and of Monteith as a particularly hybrid species.

The Dual Role Concept at Monteith. The concept of role is essential in the analysis of any social system, but it has a particular flavor in the consideration of a structure which is at all bureaucratic. In the bureaucracy, role is associated with office rather than with person. The concept of role implies the idea that people behave the way other people expect them to behave. An individual’s behavior reflects not only such general roles as those determined by his age, his sex, his family, his social class, his occupation, etc., but also his membership in this, that, or another group, his “place” in the group, and the duties and responsibilities, the ideas and sentiments, in short, the expectations attached to that place. In this sense, an individual’s identity is conferred upon him by the social definition of the behavior appropriate to a particular group, whether that group is defined by an office held in a bureaucracy or by membership in a collegial organization.

The concept of role does not imply conscious play-acting, however; it refers to a largely unreflective acceptance of the socially conferred
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identity. Furthermore, behavior in accordance with a role not only expresses the ideas and feelings which are consistent with the role, but produces them. The individual identifies with his role.

Many individuals in the Monteith College structure carry responsibilities in two areas and consequently the dual role is accepted as a normal pattern. An individual who has a dual role acts in any given social situation in accordance with his perception of the expectations attaching to one or the other of his two roles. The fact that the dual role pattern was accepted in the Monteith structure meant that usually the "others" expected the individual to be able to separate his two roles in his thinking and behavior.

The Concept of "Social" Distance. The Monteith structure is marked by relatively little social distance between individuals at various levels in the hierarchy, but by considerable social distance between different groups at the same level, especially between the three divisional teaching staffs. The concept of social distance is related to the familiar concept of "status" which is associated with the view of bureaucracy as a system which prescribes and defines relationships in an organization which is hierarchical and in which functions are highly specialized. But social distance also implies distance on the horizontal, the socially, or organizationally defined separation which is a factor in the ability of individuals and groups at the same status level to communicate with one another. Thus it applies equally well to the colleague-group relationships which characterize the three divisions of the teaching staff.

The Divisional Organization and Group Allegiance. The organization of the teaching staff into three divisions has had a crucial significance upon the group organization of the College, since each staff has developed distinctive ways of organizing itself, assigning responsibilities, and providing for internal communication and coordination. The "group," we are concerned with here is a task-oriented group, not a primary group like family or close friends. But neither is it simply an aggregate of individuals who fall into a particular classification. The concept implies not only a common task and a real interaction in dealing with this task; it implies also a more or less cohesive body which develops its own style of working, sets its own boundaries and responsibilities, and defines the roles of its members. Like all groups in the sociological sense, it is a mechanism for the control and coordination of behavior.

Ambivalence Between Roles. The Monteith instructor must deal
with a degree of ambivalence between his role as a member of a staff, sharing the responsibility for a whole course, and his role as an instructor, individually responsible for his own discussion sections. This characteristic of the Monteith structure is illuminated by the concept of the "reference group." The "reference group" does not mean necessarily an actual interacting group of people; it does mean those groups or individuals to whom one refers for standards of value and behavior. The concept is related to the concepts of role and status, since the group to which one refers for standards is likely to be determined by one's own role and status in a given social situation, or more accurately, by one's perception of that role and status. As indicated, each staff became a powerful reference group for every member in it. But it was not the only reference group. A chronic problem of the service organization, of which the college is an example, is that of the professional's ambivalence between his own definition of his client's "best interests," and the client's definition, or, in other words, the client's wishes.

In the Monteith structure, the instructor is responsible with his colleagues for total course planning and for planning and presenting lectures, but he meets individually with each of his discussion sections and is solely responsible for what occurs in them. His ambivalence reflects the tensions between the collegial model of the staff and the model of the free and independent teacher. It also reflects the instructor's reference group conflicts. In deciding what is in the "best interests" of the students, he can refer to the definition of the staff, the definition of the students or the definition of his own internalized standards which have been set by such "others" as former teachers, former colleagues, the "teaching profession," or the "scientific community."

**Stages in the Development of the Library Project**

*The Pre-Project Stage.* The four characteristics of the Monteith structure which have been discussed—the dual role pattern, social distance, the division of the teaching staff into three divisions, and the instructor's staff-discussion section ambivalence—were all of crucial importance for the Library Project at each stage in its development. From the outset I have had a dual role at Monteith. I was employed originally as a half-time executive secretary for the College. My second role was that of emissary, or salesman, if you like, from the Wayne State University Library. Dr. Flint Purdy, Director of the
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Library, assigned me half-time to the task of developing and gaining acceptance of an integrated library program. As executive secretary my role was clearly subordinate. I was responsible for implementing policies determined by the Administrative Council. Because of the lack of social distance in the vertical structure of Monteith, however, I had no hesitation about campaigning for my ideas to my superiors, and I experienced no difficulty in getting a hearing and support for the proposed program.

As soon as the faculty of the social sciences division arrived on the scene and began to meet in course-planning sessions, the chairman of the division invited me to meet with them. Because of the pressure of other duties, however, it was impossible for me to do so regularly. I soon found that when I was there my presence was accepted with grace and friendliness, but I was not a part of the cohesive interacting group which they quickly became. In short, I was not accepted into full membership.

During the first year of the College, the year in which the Library Project was being planned and the proposal to the Cooperative Research Program formulated, we presented two library assignments. For a number of reasons, students found one of these assignments both difficult and burdensome. They expressed their dissatisfaction forcibly in their discussion sections, thus bringing to the surface the instructor’s reference group ambivalence. As a member of the staff the instructor had, along with his colleagues, agreed to the assignment. As an individual, responsible for a discussion section, he faced a number of rebellious students. To some of the instructors the rebellion seemed justified; the assignment was interpreted as meaningless busywork, and the students became the effective reference group. The lack of social distance within the divisional staff, moreover, made it possible for student dissatisfaction and the instructor’s acceptance of validity of this dissatisfaction to be quickly and effectively communicated to the divisional chairman.

The First Stage. As the project began officially in the spring of 1960, then, it had already felt the effect of the four structural factors, though, of course, we were not consciously aware of these characteristics at the time. Gilbert Donahue was appointed project librarian, and was expected to serve the Project full time. But he also had two roles, in that he joined me in participating with the teaching faculty in course planning while at the same time he was assigned the responsibility for supervising the work of the bibliographical assistants.
These two roles were complementary in the sense that each was concerned with furthering the aims of the faculty, rather than with shaping them. As supervisor of bibliographical services, he supplied skilled assistance; as participant in course planning, he presented the library as means for achieving objectives determined by the faculty. Similarly my two roles were parallel, if not complementary. Both as executive secretary and as director on the Project, I saw myself as implementing rather than determining faculty goals.

There was the possibility of conflict, however, in the two roles carried by Ballingall, our research analyst. As a member of the teaching staff in the social sciences division, she carried her full share of responsibility for course planning, for lectures, and for leading her own discussion sections. As a research analyst on the Project, on the other hand, she was expected to stand a bit apart to observe and analyze the relationship between the faculty and the Project. Probably her experience as an anthropologist led her to accept without hesitation this dual role. The anthropologist is accustomed to dealing with a situation in which he participates in the daily life of the community he is studying while at the same time he maintains the necessary detachment of the scientist.

The dual role pattern involved even our bibliographical assistants. Initially these students were assigned to work for individual members of the social sciences staff. They were expressly given the responsibility of interpreting the individual needs and demands of the instructor to the library on the one hand, and the necessarily bureaucratic regulations and procedures of the library to the faculty, on the other. They were expected to work closely under the supervision of the project librarian, not only in order that what they produced would profit from his professional knowledge and skills but also in order that they might demonstrate the value of library competence. In this role we expected them to be good-will ambassadors for the Project. In their role of assisting the faculty, we expected them to adopt the values and style of the academic researcher.

Here, however, the dual role pattern failed. Almost every assistant formed a fairly firm one-to-one attachment with his faculty principal. Most of them avoided the supervision and guidance of the project librarian. They were reluctant to report to the research analyst on the nature of the tasks the faculty asked them to perform or on their own relationships with the faculty. Actually, some instructors used the assistants merely as messengers, some treated them like apprentices,
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and some gave them a sort of junior colleague role. But however they were treated, they saw themselves not as representatives of the Library Project but as research assistants for the faculty. Perhaps this was the only model of behavior with which they were familiar.

There was no notable difference in the operation of the social distance factor on the Project during the first semester. But there was a new development in the effect of the factor of the group organization. During the period before the Project started, the social sciences staff worked together as a total group. In the fall of 1960, however, having grown from 10 or 11 to 13 or 14 in number, the staff decided to break into small committees for preliminary planning of various segments of the course. The three principal Library Project staff members, therefore, spread themselves among these committees. Meeting with groups of two or three or four, we were able to get more library assignments accepted than either before or after this period. But the assignments were not very successful. One difficulty had to do with the fact that three or four people can discuss informally rather than call a formal meeting. Since our offices were not close to the faculty offices, Donahue and I were often simply not around when informal gatherings took place. We were frequently not fully aware of all the considerations involved in the committee’s plans. Consequently, some of the assignments we proposed, though accepted, were not really in tune with the units to which they were expected to contribute.

Another difficulty which stemmed from the changed organization of the social sciences staff arose from the fact that the total staff did not feel fully committed to the plans developed in committees, plans which did not reflect the thinking of the staff as a whole. As a result, individual instructors worked quite autonomously in their discussion sections, emphasizing those aspects of a given unit with which they felt sympathy, de-emphasizing other aspects. The aspect most often de-emphasized was the library assignment. The chain of relationships might be summarized as follows: With the increasing cohesiveness of the committees, the solidarity of the total staff decreased. As the solidarity of the staff decreased, its power as a reference group diminished, and students or “generalized others” gained reference group power proportionately.

The Second Stage. During the second semester of our operation, which was from February to June 1961, all four of the structural factors had a negative influence on the development of the Project.
It was at this time that we extended our operation to include not only the social sciences division but the natural sciences and the humanities divisions as well. We provided bibliographical assistants for the instructors, and we began to meet with them in their course-planning sessions.

And now we began to meet lack of acceptance of our dual role pattern. As executive secretary, I had by this time become an ex officio, non-voting member of the Administrative Council of the College, which is made up of the three instructional divisions. I was never conscious of this making any difference in my role as director of the Library Project, but evidence later appeared that some instructors saw me primarily as a member of the reputedly powerful Council. My role as a librarian, attempting to serve the instructional goals of the faculty, or, at worst, trying to gain acceptance for my own library goals, was quite overshadowed. Similarly, as we began to work with the faculty in the two additional divisions, all three Project staff members were seen not so much as representatives of the Library Project but rather as social scientists or quasi-social scientists meddling in the business of natural scientists and humanists.

In a sense, this view was justified. Ballingall is, indeed, a social scientist and Donahue and I, by training and inclination, probably merit the label "quasi-social scientist." Nevertheless, in our Library Project roles we did not see ourselves as representing the social scientists. We were, in fact, painfully conscious of the fact that the librarians among us had never won full membership in the social sciences staff. We were unprepared to find, therefore, that the Library Project had come to be identified not as a general educational effort, but as a social science enterprise.

Now these comments on our relationship with the humanities and natural sciences divisions should not convey the impression that we or the Library Project were completely rejected. I should make it clear that I am describing neither outward behavior nor individual relationships. The natural sciences staff was gracious and friendly in inviting us to participate in its deliberations. What I have tried to express, rather, is the general, perhaps largely unconscious, attitude of the "ideal-typical" instructor. Certain individuals on each staff were most sympathetic to both our aims and our methods. They really acted as sponsors for the Project. And some instructors were always willing to give us a chance to try out our ideas, whether or not they found these ideas persuasive to begin with. Our experience
during these months, nevertheless, indicated a breakdown of accept-
ance of the dual role pattern. It reflected, furthermore, the consider-
able horizontal social distance between the three staffs.

The group organization factor created additional difficulties for
the Project in the second semester. As we continued to have trouble
relating ourselves to the sub-group organization of the social sciences
staff, we were now faced with a similar sub-group organization in
the other two divisions. The natural sciences staff had from the very
beginning tended to organize itself into subgroups based upon dis-


diciplinary specialization. The humanities staff, consisting of only four
members, had no need of such subdivision. On the other hand, the
three rank-and-file members often gathered informally. The chairman
of this division was also Director of the College and was frequently
occupied with general administrative duties. Formal meetings of the
humanities staff, therefore, came more and more to serve the purpose
merely of crystallizing the results of informal discussion. The formal
meetings of the natural sciences staff served similarly to crystallize
the plans developed in the specialist committees. When the Library
Project personnel participated in these meetings, therefore, we found
that we could contribute little. The library assignments we suggested
were likely to be out of tune with prior discussion. We succeeded in
getting acceptance of one assignment in the humanities course and
one in the natural sciences course, but neither of these was success-


fully carried out.

As we ended the second semester of the Project, our morale was,
understandably, at low ebb. We felt ineffectual and rejected. Natu-

rally enough, we began to turn to one another for comfort and sup-
port. Eventually, as we became increasingly aware of our own soli-
darity as a group, we found ourselves able to take a more constructive
approach to our work.

The Third Stage. During the summer of 1961, we devoted major
attention to analyzing and discussing our experiences thus far and to
developing plans for what was to be the last semester of the Project's
operation. By the end of the summer, we had decided upon three
important changes in our organizational structure. We dropped the
attempt to meet regularly with the three divisional staffs. Instead we
asked one member of the natural sciences staff and one member of
the humanities staff to serve as Library Project representative for
his colleagues. Our research analyst continued her dual role in rela-
tionship to the social sciences staff. These two teaching staff repre-
sentatives met with the three Project staff members to consider the objectives and methods of the library program in general. We worked with them individually in making detailed plans for assignments in their respective areas. Our new structure preserved the dual role pattern—in fact, it extended it—but it also recognized the importance of full membership in the interacting faculty group responsible for course planning. We felt that by giving the dual role responsibility to the instructor we would make it possible for library assignments to be in tune with the objectives and pedagogical style of the faculty and to be presented at the crucial decision-making moments in the course-planning process.

The second change in our organizational structure was the discontinuation of the individual assignment of bibliographical assistants to instructors. We decreased the number of assistants and pooled those remaining into a group who would work directly under the Project librarian. Requests for bibliographical service were channeled through him to whichever assistant he thought best qualified for the particular job, though for a long-term or highly specialized project he might send the assistant to work directly with an instructor. All of the assistants were given a carefully worked out training program which included a series of bibliographical problem tasks. As a result of these changes the bibliographic assistants became a highly cohesive group, a group which clearly identified itself with the Library Project. By the end of the term, as their employment by the Project was about to terminate, some of them felt so competent that they took tentative and, as it turned out, inconclusive steps toward setting themselves up as a bibliographical search service. Five of the fifteen, incidentally, decided to become librarians. Two of these, I believe, are now in library school. In general, this new organization of our bibliographical services departed from the dual role pattern, but it created a loyal, cohesive group, capable of producing high quality work.

The third major change in our structure was in the presentation of assignments to students. The assignments, themselves, were considerably different from those we had tried previously. Our experience with previous assignments had taught us a good deal about what kinds of library instruction and experiences are appropriate for college work. In our new assignments we found ourselves at last with a product to sell that the faculty would buy. (This change, of course, was a crucial factor in the acceptance we managed to achieve in the last semester of the Project. But it is not a structural change, so it is
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not pertinent to the present discussion.) The structural change we now put into effect was that of having librarians take an active part in the presentation of assignments.

We had originally assumed that the librarians should remain as much in the background as possible and had left the implementation of library assignments to the faculty. Now, beginning in the fall of 1961, every assignment, once accepted by the teaching staff, was presented by and discussed under the leadership of one or another of the three members of the Library Project staff. We made every effort to see that each instructor demonstrated his support by participating fully in discussion of the assignment and by showing that he considered the assignment an essential part of the student’s experience. This change in procedure reinforced the power of the divisional staff as reference group because our very presence in the discussion section represented a staff decision. At the same time, the new procedure gave us an opportunity to contribute to students’ thinking about the assignment and thus to influence the standards that they, as a reference group, presented.

As the final semester of the operational phase of the Pilot Project ended in February 1962, we felt that we had finally arrived at a workable social structure for our purposes. In the future of the Monteith Library Program, we plan to maintain this organization. A review of this structure may serve to summarize the findings just presented.

The organization calls for the dual role pattern which is accepted in the Monteith structure, but by shifting the dual role assignment to a representative of each of the three staffs, it attempts to ensure that each role is fully accepted. The instructor who serves as a Library Project representative will have already been accepted to full membership in his staff-colleague group. We know from our own experience that he will have no difficulty attaining full membership in the smaller and intensively interacting Library Project staff group. We are reasonably certain that in this group he will acquire a more sophisticated view of what real knowledge and skill in the use of library resources involves.

The new arrangement also recognizes the impossibility of having two or three librarians participate effectively in the dispersed subgroup organization which exists in each of the three divisions. Our faculty representative will have a much better opportunity to do so. He should find it possible to play the role of Library Project sponsor at those crucial points of interaction when presuppositions are being
expressed, when ideas are taking shape, when plans have not yet crystallized.

The participation of an instructor from each division, together with the Library Project staff, in discussions pertaining to one element common to all three course sequences may help to bridge the social distance between the three staffs. It should, in any case, lessen the significance of this factor in the development of the Library Project, since no one identified with one staff will be put in the position of having to concern himself directly with the teaching plans and procedures of the others. And finally, our new procedures for presenting assignments to students helps to overcome the problem of the instructor’s reference group ambivalence.

Implications for Library Research

The significance of the structural analysis of the Monteith Library Project as a sociological study must be determined by others. Its significance as a demonstration of the value of applying sociological-anthropological concepts and methods to the study of library problems seems to me unquestionable. The insights associated with this type of approach were manifestly crucial in helping us at Monteith to understand and overcome the difficulties we encountered in the Pilot Project.

Such insights would probably be similarly useful in helping us understand, and perhaps overcome, some of the problems we face in other parts of the library world. Think, for example, of the academic library as an organizational element in the overall structure of the college or university. By its very nature, the library has a much more sharply hierarchical organization than the college, which strives to carry on the tradition of the “community of peers.” In such a situation, there is a natural tendency for the library to feel uncomfortable unless it adopts the mode of social control which prevails in the larger institution. But the pattern of professional peer group control may be meaningless in the steeply hierarchical organization of the library. It may, indeed, jeopardize the efficiency of an organization whose operation depends so heavily upon the coordination of a great many and diverse activities, upon reasonably uniform rules and procedures. On the other hand, the library suffers from the tendency of every bureaucracy to value its rules and procedures for their own sake, losing sight of the ends for which they were established. A strong identification with the interest of the client, that is, the faculty and
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students, as defined by the profession rather than by the organization, may serve to guard against over-bureaucratization. This dilemma for the academic library is revealed through the use of social science concepts.

The field of library cooperation offers another example in which such concepts might be illuminating. In the state of Michigan, we have found that librarians of small, substandard libraries are often reluctant to support a state plan which calls for regional cooperation. This reluctance can be understood as stemming from the difficulty that such librarians have in identifying with the standards and values determined by the profession. These isolated librarians are likely to receive status and recognition locally from the patrons they serve. Seeing their situation in this light, we might be less likely to embark on educational or promotional programs to overcome their reluctance and more likely to attempt to find ways of providing them with a different kind of group support, perhaps by improving their status in professional circles, perhaps by attempting to enlarge their patrons’ understanding of the library resources and services made possible by cooperative library programs.

Here, then, are examples of two library problems upon which a sociological approach could probably shed some light. We hope that our application of sociological concepts and methods in the Monteith study will encourage others to try such an approach to other library problems such as those suggested.

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5. Ibid., pp. 11-25.

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ADDITIONAL REFERENCES

Research on Effectiveness of Elementary School Libraries

MARY VIRGINIA GAVER

In presenting the development of this project, its methodology, and its particular problems and difficulties, there are several background characteristics which perhaps make it quite different from some of the other investigations which will be discussed at this conference. One of these requires a confession on the part of the investigator, the others merely a reference to place the characteristics before you.

Let us start with the confession. The initiation of this project came quite frankly from a group of school librarians who saw a major problem in their work and turned to several library schools to seek help in solving the problem. These were the state supervisors of school libraries who in the spring of 1958 saw in the resources of the Cooperative Research Program the possibilities for research into the effectiveness of elementary school libraries. In their work as state supervisors, they were finding increasing difficulty in convincing local and county superintendents of schools that libraries in the elementary schools were a necessity. Rutgers was the only one of the several schools to whom this group turned which had the temerity to take the bait. This means, of course, that the investigation has from the first labored under the handicap of being argumentative research. It has been carried out by a director who had been emotionally convinced of the outcome of the research which she was in process of carrying out. You will agree that this required an excess of objectivity on the part of the investigator. However, you know the adage that fools rush in where angels fear to tread. In this case, let me hope that my devotion to the library faith justified me in the assumption of ability to complete this responsibility, with the assistance

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of staff, advisory committee, and colleagues in education and librarianship.

Secondly, this project should be classified as a piece of interdisciplinary research, I believe, in spite of the fact that it was sponsored by the Library School alone. The content of the research placed it squarely in the dual fields of education and librarianship, the staff represented both areas, and the advisory committee drew on both areas. This aspect of the project has been explored in some detail in a *Library Quarterly* article,1 and so it only will be mentioned here that while there were frequent frustrations and some delay because of this interdisciplinary characteristic, the results were in the long run better because of it. Luszki states in her work on *Interdisciplinary Team Research* that "the kind of problem chosen may arouse resistance on an almost unconscious level because of the unspoken philosophy to which a person adheres. These differences . . . may result in compromise and lack of crystallization. . . . But if this danger can be averted and the conflicting points of view worked out among the disciplines, members will then have a clear-cut focus of interest and will have taken a long step forward in constructive work together." 2 The task of having to explain the rationale of librarianship to the educator on our staff and the point of view of the education field to the Director certainly contributed to the strength of the proposal and to the clarity of the thinking, such as it was.

Thirdly, the focus on elementary school libraries raised certain problems. Unlike college and high school libraries which exist in almost all institutions, the elementary school library actually exists in only a small proportion of schools. In New Jersey, only 16 per cent of the elementary school classrooms are served by what could be classified as a real school library. The elementary school library is, therefore, in a very real sense, in a highly transitional state as an institution. This condition necessitated an about-face in our planning and resulted in our focusing not on the library as the primary target of the investigation but on the classroom. Furthermore, if you are at all familiar with our public schools today you know that an elementary school classroom in Newark, New Jersey, and another in Phoenix, Arizona, may differ widely in many factors, among which are amount of money spent for the schools, socio-economic characteristics of the children, and degree of administrative and curricular control exercised at the state level. Suffice it to say that in this investigation, the milieu is that of the Middle Atlantic states where even the lower
quartile of schools is above the average of the country as a whole in amount of money spent for education and where the administrative and curricular control is of the strict grass roots variety. While these characteristics may be quite different in other regions, they are at least common to all the schools in our investigation.

In reconstructing our methodology, its development and problems, my sources of information include not only the final study and the six quarterly reports to the United States Office of Education, but also a log kept for the 18-month period and notes on the most important planning conferences. Let me report first on the strategy of our investigation and second on its logistics, as a convenient way to differentiate between the general over-all plan and the development of the specific measures.

Research Design

The original plan of the investigation had been to use two control and two experimental schools, matched on a variety of criteria, as our sample for testing the effectiveness of elementary school libraries. On this basis, the project had been approved by the Cooperative Research Program. However, we were fortunate in having, at a very early stage in the work, the benefit of a brainstorming session of staff members of the Educational Testing Service. Among their criticisms of the control design was the very large number of criteria that would be essential for real matching of schools and the resultant near impossibility of securing enough schools, or schools that would really match, for the study. Now that the investigation is completed, I realize that we would not have been able to carry out this design. In discussing the kind of criteria to use in selecting schools, the advice of the ETS staff was to control on some criterion not influenced by the library, as for example, achievement in arithmetic.

At this early stage of the planning, the importance of the teacher's attitudes in creating a demand for library services and the crucial function of the leadership of the principal were pointed out as factors which had not been included in the planning and which might well be vital predictors in such a study. The ETS staff also pointed out that a dedicated school librarian might equally become a differentiating factor in a control-designed investigation. It was interesting to note that the ETS experts, while thoroughly knowledgeable in the role of the library in the educational situation, were able to think in terms of the real role of the library in a way which was not, I fear,
always true of the librarians. For example, their major concern was with the question, "How are children and books brought together?" rather than with the question, "Is the library run by a librarian or a PTA volunteer?"

From this conference, the decision was made to change the basic design of the study from one of a control situation, with schools matched on a number of criteria, to one of matching schools "generally"—that is, using groups which represented types of library service and selecting them on the basis of as few and as simple criteria as possible. This reduced the emphasis on matching and placed the investigation within the co-variance type of study, which has special advantages where direct control of variables is impractical or impossible, as in the present case.³

A second step in planning the over-all design was the determination of the areas of library service which would be evaluated and used as predictors. These were selected on the basis of a logical analysis of the profession's concept of the role of the school library. The Director was in this case very much influenced by the ideas being considered at that time in the development of Standards for School Library Programs and owes an especial debt to the concept of the school library program embodied in that document by Dr. Frances Henne.⁴ The major role of the school library is presented there in terms of its contribution to the reading program of the school and to instruction in library and study skills, and in its provision of a program of services and organized resources highly accessible to the classroom teacher and to the students. From this analysis the five major areas of the investigation were categorized as (1) evaluation of collections, (2) accessibility of resources, (3) library-related activities, (4) reading skills, and (5) library skills. While this is a much oversimplified statement, it is the best analysis I can make of how we arrived at these particular aspects of the study.

Before stating the specific objectives of the study, let me list the criteria and predictors for which we selected or developed and applied measures (see Table 1). The inter-relationships of these criteria and predictors, in terms of the elementary school library, comprised the major part of the study. The predictors identified and measured in this study (that is, those factors which in scientific terms measured the input, or the educational influences on children) included (1) certain socio-economic characteristics, (2) the quantity and quality of materials available in the schools, (3) the accessibility of materials
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in the school, and (4) the library-related activities provided for children and teachers in the school. The criteria identified and measured in the study (that is, those factors which measured the outcomes in terms of individual student scores) included (1) library skills, (2) scores of amount and quality of reading, and (3) scores on a standard achievement test, both the composite score and the individual parts. These predictors and criteria make up the twenty-six variables which the study produced and analyzed.

TABLE 1

Variables Studied in Phase One

Predictors

Socio-economic factors:
1. Father's occupational level
2. Father's educational level

School scores:
3. Score on library collections
4. Accessibility score
5. Library activities score

Criteria

Educational achievement (ITBS)
6. Vocabulary
7. Reading
8. Language
9. Library work-study skills
10. Total work-study skills
11. Arithmetic
12. Composite

Amount and quality of reading:
13. Library skills test
14. Number of books read
15. Number of literary forms
16. Number of interest areas
17. Enjoyment of reading
18. Reading difficulty level
19. Concept level
20. Number of sources

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21. Number of magazines read
22. Frequency of magazine reading
23. Number of comics read
24. Number of purposes for reading
25. Number of stated reading interests
26. Number of activities

You will note three important variables which we omitted. Two have already been mentioned—teacher attitudes and the leadership role of the principal. One of the errors committed by the Director was that of over-ambition in trying to follow all of the interesting leads turned up in the course of the study rather than sticking to the outline laid down by the basic proposal. An attempt was made in the early months of the project to recruit a group of doctoral students in education to carry out an investigation of these two variables, but it had to be abandoned because the students were not ready for such a complex study and the resources of the project did not permit its inclusion. Since the completion of the study, a doctoral student in the Library School has investigated one aspect of the teacher factor in relation to library use.5

A third variable which was omitted but on which data are reported is the relationship of available public library service to the measures of pupil outcomes. The ETS staff reports that one of the factors which in their experience is positively correlated with achievement of high school students on their tests is the presence of a public library. The same situation may exist with elementary school students. Suffice it to say that we resisted the impulse to include this as an added variable in our investigation, other than to report it as a community characteristic. These then were three potentially significant variables which were not studied in this investigation but which would surely warrant further research.

A final point must also be made: Phase I was intended only as an exploratory or feasibility study, with the purpose of developing and testing measures for later use in determining (in Phase II) the effectiveness of the elementary school library, using a large sample. It was, of course, for this reason that a study based on such a limited sample could be envisioned. It also justifies the legitimacy of what frequently looked like, and were, "fishing expeditions," both in the identification and consideration of previously unconsidered variables and in the tryout of various methods of measurement or analysis. However, the timetable for the project and the funds and staff avail-

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able allowed us little leeway for any playing around with alternate procedures or for true experimentation with different methods of measurement.

This then is the process which we went through in developing the over-all strategy for this study of the effectiveness of elementary school libraries, culminating in a decision to change the original pattern from a control situation to a covariance design, involving the use of groups of schools representing differing types of library provision and selected on the basis of as few criteria as possible. Lumsdaine's comment about this particular technique and its pertinence to this kind of study is of significance here: "... matching or analysis of covariance procedures should be resorted to only when administrative factors preclude the setting up of a true experiment. . . . There are two general ways in which this condition may be attained. . . . The second, where assignment to treatments must be made in terms of intact, preformed groups, e.g., classrooms, rather than in terms of individuals, is to use the group rather than the individual as the unit of statistical analysis."

Following the choice of this covariance design, then, the twofold objectives of the study were stated as follows: first, to develop instruments which would evaluate the program of library services available in elementary schools in terms of (a) the provision of library-related materials, (b) accessibility of resources and services, (c) the extent of library-related activities, (d) the degree of pupil mastery of library skills, and (e) the amount and kind of reading done by pupils and their purposes and interests in reading; and second, to study the score and ratings obtained on these instruments in terms of (a) their relationship to measures of educational achievement and community position, and (b) their ability to differentiate between schools having varying degrees of library provision.

The pairs of schools used in the study were chosen to represent three categories: (1) the school library with a full-time librarian, (2) the central collection with PTA or teacher supervision on an extra-time basis, and (3) the "classroom collection" type of library provision. We considered the inclusion of a fourth category—the school with a part-time librarian, no less than 2-3 days per week—but this was rejected because we were hoping to find maximum differentiation among the categories. Subsequent research by the writer and our students at Rutgers has found some differentiations at this level, and it is believed that the measures developed, or modifications of them,
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may be used effectively for this purpose. Criteria for selection of the schools, in addition to their type of library provision, included a K-6 grade distribution, an enrollment of 300-700 students, and the availability of a common measure of educational achievement at the 4th grade level. Even with these three simple criteria, we had great difficulty in securing our cooperating schools and had to go out of the state for one of them. The population for the study consisted of the sixth grade students of the six schools and all the teachers.

Developing and Applying the Measures

The second major area of our methodology involved the application or development and administration of the measures in each of the specific areas. In each case, there was a procedure of selection or development of the measure followed by tryout, based on a statement of hypothesis, limitations, etc. Where the measure had to be developed (which was true of five areas, two of which had a number of sub-areas) we outlined the content, selected the appropriate form of measure, tried out and analyzed preliminary findings, and administered and analyzed the findings on the research sample. Reliability tests were also applied to all measures except two, and these are reported in the published study. (Items 7 to 11 in the bibliography refer to some of the specific measures developed for this project.) In keeping with the purposes of this conference, comment here is largely confined to a statement of problems and difficulties rather than to the significance of the findings.

Anyone contemplating a study of this complexity should realize that meshing the timetable for the development and administration of the measures with the school calendar, especially when all work must be completed within a single school year, is of itself no mean responsibility. In addition to that, the fitting of the project requirements to the calendar of doctoral candidates would only add to the administrative difficulties. In our case, our doctoral program in library service was not then ready for any of our students to participate, although one advanced student was able to make use of the project for a study and we could have assigned several parts of the project to doctoral candidates. The necessity of assuring the doctoral candidate the necessary independence in his investigation without at the same time jeopardizing the limitations of the project proposal would be another very real problem to the director of such a project. One of the problems which such a conference as this ought to con-
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sider, perhaps, is the lack of financial support for doctoral students to participate in such investigation; under the present conditions, such opportunities seem even more limited for students in the school library field than in fields such as documentation and special librarianship.

The most important of the over-all problems in administering the project was the difficulty in selecting the schools. Variability in grade distribution and in size of schools is not perhaps as serious in New Jersey as might be the case in other states since New Jersey schools are fairly homogeneous. Our greatest difficulty lay in the wide variations in the testing patterns followed in the state—not only in the particular test series used (ITBS) but also in the grade at which any given test was administered. It was necessary to carry out two preliminary studies to determine what tests were given and at what grade level and to survey the elementary school libraries in the East in order to determine whether New Jersey situations were good enough to be representative. It is believed that this problem would now be somewhat easier to solve since Houghton Mifflin, the publishers of our selected test series, can identify well over 1,500 school systems in the Middle Atlantic region which use their product at the present time.

A second major problem was that of deriving measures which could be administered both in schools with school libraries and in schools having no central libraries but only classroom collections. It was for this reason that we decided that all book materials other than outright textbooks had to be evaluated, whether housed in classroom, library, or storage room. The greatest difficulty in this connection arose with the accessibility rating scale which was administered both by teachers and by a jury of experts. The teachers were most unhappy in their scoring of this scale since those not in a school library situation could not see the point, even though items were very carefully worded and tried out several times.

The measure of library-related activities was also responded to by the teachers, and since it was exceedingly long, it took three weeks to get returns from this one test. In connection with the achievement tests, a different difficulty arose, but one that was difficult to pin down or alleviate; we suspected some schools of "teaching to the test" but could in no case do anything about it in a single year's project. The Quality Measurement Project in New York State found it necessary for this reason to administer their tests themselves, but this procedure was beyond our resources. In evaluation of the collections,
also, there was considerable criticism of the Waples technique which we used, our research associate stating that it validated the checklist and not the collections. We have since conjectured whether collections might not be evaluated with validity on a straight dollar basis. Again, the multiplicity and complexity of the data resulting from our measure of student reading was one of the major problems of the entire investigation. Another problem throughout the project was that of gauging the impact of the research activities on the school and on the sixth grade classrooms. We came very close to the borderline of imposing more than even the most favorably-inclined faculty could tolerate; this would have to be a matter for serious concern in any similar investigation and by itself is a strong factor in limiting the number of variables which can be studied.

A third type of problem might be cited as deriving from weaknesses in the library profession. In this class would fall our difficulty in developing checklists for evaluation of the collections. For example, the lack of reviews of the mediocre and inferior trade book, coupled with the considerable proportion of book production which is pure trash, provided a major difficulty in the identification and rating of specific titles. The inadequacies of our bibliographic apparatus were also evident in this work. On the other hand, the critical reviews of reference works provided by the Subscription Books Committee of ALA made the problem far easier in rating this aspect of the collections. In a third type of material—supplementary textbooks—the problem was not one of lack of reviews of mediocre titles but rather lack of any reviewing at all. There were also wide differences in the way the materials are used in schools, even in the same schools, and there is real lack of acquaintance with these materials on the part of both teachers and librarians. If any proof were needed of the rapid changes taking place in education and of the great need for an organized center for all teaching and learning materials in each school, this one aspect of the study provided it.

A final type of problem arose in connection with the analysis of the findings, although so far as I am aware our difficulties in this connection were only those to be expected from this type of study—that is, one which produced scores on a great number of variables based on a restricted sample. While we believe that we met our objective of developing measures which differentiate among the three library categories for the sample of six schools, it is also true that three of the criteria which were based on school scores could not be handled at all
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in the correlation analysis because of the restricted size of the sample, and that on several of the variables there was significant overlapping among the mean school scores, in spite of the fact that the scores for the three categories did not overlap. "Overlap" is used here to identify a situation where the data fail to correspond to expectations in terms of the hypothesis, i.e., data do not progress uniformly but overlap from one category to the next. This overlapping of scores is not unexpected in this kind of analysis, although it can be handled statistically by regression analysis when the sample is larger.

The one instrument on which there was no overlap among schools or categories was the Accessibility Rating Scale, and, partly for that reason, I believe it is one of the strongest instruments which we developed. This problem of overlap evidenced itself in two ways in various sets of data. Sometimes the overlap was great enough so that (1) one category was significantly different from another due to the effect of one school but not both, and (2) no significant difference appeared between categories although there was significant difference between schools.

Summary

This completes the description of the development of our research design and of some of the problems and difficulties met in our project at Rutgers on the effectiveness of centralized libraries in elementary schools. It seems pertinent to mention also the amount of time and personnel involved in the project. Although the official period was eighteen months, the Director started work six months prior to actual initiation. The relief allowed from university duties constituted one class for two semesters of the four in this period, plus the last summer when full time was devoted to the project. As well as the payroll can now be reconstructed, nine different persons worked at various kinds of clerical and tabulating jobs, and we used seven different paid consultants, not counting the members of the Advisory Committee who assisted us in many ways with no remuneration other than their expenses. The Associate Director was employed on a half-time basis for the first five-month period and thereafter full-time; her duties were to supervise all tabulation and data-gathering operations in the field and office and to assist the Director in planning the research. All tabulation was done by hand other than the last correlational analysis of the scores for close to 300 students on the 23 pupil variables, which was done by machine computation. At the beginning of the second
quarter of the official time period, we were at the point in our research design where we ought to have been before we officially started. Therefore, my last word to anyone planning this kind of project is to allow plenty of time for literature searching and for developing the research design.

It should also be reported that although we have to date been unsuccessful in securing support for the projected Phase II of the investigation, there has been follow-up of the research. You will note from the bibliography that the measures are being separately issued in revised form and it seems likely that they will have value in a variety of situations. There have also been several studies both by the Director of the project and by doctoral students which have carried the research forward in various ways. Our most valued critics, the staff of the Cooperative Research Program, state that the argumentative purpose of the project has been achieved although it would seem to us that until the instruments have been applied in a really sizeable sample of schools, a minimum of thirty in our opinion, we can not truthfully claim that the hypothesis has been either proved or disproved. Another method which seems possible for Phase II would be the replication of the research using a number of different sets of schools in different areas of the country. This might have an advantage of permitting the inclusion of at least one different variable or area of analysis in each set and thus reduce the amount of intrusion on the classrooms of the cooperating schools.

In working out plans for a Phase II operation, it would be important to develop new hypotheses not tied to the differentiation between library categories but focusing squarely on the contribution of the school library to the educational program in elementary schools. It would also be important to study the instruments in more depth. Their reliability has not been clearly established in every case, and it is also quite possible that two or more of the instruments are measuring the same thing. Certainly inclusion of the variables which were omitted in Phase I should be planned for, since these factors seem to have real significance for our knowledge of education. There were also many instances in which we did not exploit sufficiently the data which were collected, for lack of time and staff. In particular, it would undoubtedly add to the significance of a Phase II study to explore what the different levels of library provision do for children of different levels of ability. These are only a few examples of the potentialities

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in continuing research on the effectiveness of library service in elementary schools.

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The Coordinated Collection and Individual Use of Library Statistics

FRANK L. SCHICK

The 20th century emphasis on numerical findings is probably related to the exactness, pervasiveness, and wider acceptance of science; the continuous expansion of population, industrial and agricultural production and marketing; and the receding horizons which have stretched from national to global, and now to interstellar proportions. As our activities and frames of reference are extended, our need to comprehend them makes the statistical method increasingly useful.

Mere arithmetical counting of populations is as old as the need of governments to administer, to tax, and to recruit. Only in the late eighteenth and in the nineteenth centuries were the means, resources, and insights available to give rise to the social survey movement which in turn gave considerable impetus to the development of the statistical method. John Howard, in his study of British prisons, may have been the first to conduct the type of research which pointed the way for men like Charles Booth, who is usually credited with having designed the first social survey. Howard used his findings in testimony before the House of Commons in 1774, which led to prison reform legislation. Booth conducted his extensive surveys to study “the numerical relation which poverty, misery, and depravity bear to the regular earnings and comparative comfort and to describe the general conditions under which each class lives.”

Among the various research methods, statistics, in providing systematic quantitative expressions of observed phenomena, serve descriptive and analytic purposes. Through measurements and summarizations they assist such diverse fields as biology, chemistry, psychology, sociology, business, economics, education, and librarianship. By means of induction and analysis, inferences can be drawn

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which provide conclusions about unobserved or unobservable phenomena. Through methods such as sampling it becomes possible to draw conclusions concerning larger than observed universes, or to project with definable precision into the future and thereby arrive tentatively at evaluations of as yet unobservable phenomena.

Statistics can describe concrete conditions and performance of social institutions such as libraries, in terms of human and physical resources and facilities. They permit comparisons of the same or similar units over a given period of time. They can indicate shortcomings and gaps and enable us to put a dollar figure on the needs for remedies. Statistics are essential tools of dynamic administration, means of evaluation, springboards for planning, and the foundation on which budgeting and legislation should be based. To be valid, statistics require data which are reliable, clearly defined, uniform, and comparable. For legislative and budgetary purposes they should also be timely.

Statistics and Librarianship

In the American library field the effect of the population explosion of the last quarter century is reinforced by the expansion of knowledge and literacy which is responsible for increased research activities and has resulted in a publications explosion which forces upon us continuous revision of concepts of bibliographic containment. As a consequence, we are witnessing a paradox whereby the population and publication explosions combine to reduce the literacy potential by making it increasingly difficult to render adequate service at a time when it is urgently needed.

Due to these factors, the need for all types of libraries has increased sharply, creating shortages of finances, manpower, and physical facilities. If relief is to be provided for this national problem, it will have to be nationally observed, described, and analyzed. Inferences will have to be drawn not only nationally, but also statewide and locally, and brought to the attention of the public at large, administrators, and legislators on the national, state, and local scenes. For this reason, statistics will have to be compatible and comparable for our three jurisdictional levels. Geographic factors may make it desirable to study service patterns which would involve regional constellations and possibly lead to interstate compacts—a fourth jurisdictional level.

In order to assess the recurring statistical library surveys which are
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directed on the state, regional, or national level, the Library Services Branch of the U.S. Office of Education published in 1961 Statistics of Libraries: An Annotated Bibliography (OE-15022) which was compiled by John Carson Rather and Nathan M. Cohen. It cites 156 up-to-date statistical surveys which had been compiled and published in 1960-61. Of these 156 surveys, 30 per cent cover the nation or various regions, 70 per cent cover the individual states. Almost 40 per cent are conducted by state education agencies, 30 per cent by state library agencies, and nearly 15 per cent by the U.S. Office of Education. The remaining 16 per cent are distributed among national education and library associations (6.4 per cent), state library associations (6.6 per cent), academic institutions (36 per cent), individual public libraries (2.6 per cent), and private sponsors (2.6 per cent). Thirty-five per cent of these surveys cover public libraries, 28 per cent school libraries, 20 per cent college and university libraries, 8.5 per cent special libraries, 5.5 per cent library schools and training, and 1.5 per cent general topics. State education and library agencies are the most frequent sponsors of such surveys because they frequently have the legal responsibility for undertaking them for school and public libraries. Similarly, the act which brought the U.S. Office of Education into existence in 1867 made the conducting of statistical surveys on education mandatory.

In the surveys undertaken by state agencies, public and public school libraries are well covered; academic library surveys frequently omit institutions under private control; special libraries and nonpublic elementary and secondary schools are very inadequately covered. State, regional, and, by and large, national surveys give information of very similar, but not comparable, nature because the definitions on which the surveys are based are not identical and the survey periods differ. As a result the respondents, the individual librarians, have to fill out various forms, creating a duplication of labor. This is paradoxical because the data which are essential for administrative, budgetary, legislative, and informational purposes are with few exceptions identical. Actually the data are of three kinds: those dealing with fiscal aspects, with resources, and with performance and use. In the first two areas there are only small differences between states and also between types of libraries, indicating that the potential for comparability is high. The measuring of performance is most difficult because "use" questions concerning circulation, registration of borrowers, or the answering of reference questions are considered in-

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creasingly inadequate yardsticks; they are still used because better use indexes have remained unexplored.

*Foundations for a National Library Statistics System*

In surveying the library situation in 1950, Robert D. Leigh stated that "... the United States has a multitude of libraries, some of them magnificent institutions, but it has no library system. It falls far short of providing the people everywhere equal access to the means of learning through the reading of books." 4 Little has happened during the intervening years to challenge this statement except for the increased awareness of this situation among librarians. Library cooperation which took the form of union catalogs, bibliographic centers, the Farmington Plan, inter-library loan exchange arrangements, or the creation of the Midwest Inter-Library Center is significant; but these developments will have to be implemented by nationwide coordination which could bring about adequacy of service. That increased efforts along these lines are essential was recognized by James Bryant, when, during the annual American Library Association conference in 1963, he focused the profession's attention on the student-use problem in library service. This conference made it evident that cooperation will have to give way to the wider concept of integrated inter-library service which would require the establishment of statewide systems through amalgamation, contract, merger, statewide coordination, and other means which are now being contemplated in New York, New Jersey, and other states.

Such changes would not necessarily or permanently require largely increased funds, but they would amount to a major legal effort resulting in the scaling of jurisdictional barriers and the transfer of public funds in accordance with population movements across the city, county, and possibly even state lines in relation to demonstrated users' needs. As Robert Leigh indicated, this changeover "... would make for complete coverage of the population and would come nearer to equality of service to the whole public," but it "... would involve elaborate arrangements for priorities, allocations, and exchange between the libraries of a community or region." 5 It would also require careful arrangements which would not loosen the ties of a library and its local allegiance and support while extending its coverage in various directions. A nationwide library statistics system would pave the way and would have to precede the formation of a library opera-
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tions system because it would provide the foundation on which it could rest.

Regardless of the actual formation of an operations system, the statistics system would have the advantages of economy for the surveyors, the elimination of duplication of efforts for the respondents, and comparability of data on the local, state, regional, and national levels. To accomplish this aim, the collection of statistical information would have to be:

1. A shared responsibility among individual libraries, state library and education agencies, and the U.S. Office of Education;
2. Based on identical definitions and terminology and measurement criteria to permit uniformity and comparability;
3. Based on the cooperation of various national and state library associations to assure validity and reliability for their use as well as for the use of administrators and legislators at various jurisdictions in the several states;
4. Assured of the guidance and assistance of statisticians on the state and national levels;
5. Assured of sufficient flexibility to permit states or regions to add requests for information which are of importance only in their particular jurisdictions;
6. Timed according to a schedule suitable for all or a majority of the states; and,
7. Sufficiently useful to compensate the participants for their efforts, to permit each state agency to have all data available for its own use, and to provide the opportunity to compare itself meaningfully with the developments in all other states.

During its July 1963 annual conference, the American Library Association adopted the Standards for Library Functions at the State Level. Two paragraphs of these standards are directly related to the concepts of the establishment of a statistics system and its implementation and read as follows:

The state should gather and publish annual statistics on libraries in the state—public, school, academic, special, and including state library agencies themselves—and should provide central information about the library resources of the state.

Statistics are an ingredient in state development and planning for
which state library agencies have a direct responsibility. This responsibility, and the requirement that libraries furnish information, should be written into state law. It should be possible within every state to turn to state government for information about all library resources in the state. The annual information should be analyzed by state agencies to determine trends and needs in library service. The analysis should be distributed to all libraries, library groups, and appropriate government offices as an aid in planning activities. The gathering and tabulating of library statistics should be done in conjunction with other agencies of government that have data equipment.

The annual statistics gathered by the several states should be designed to provide a common core of data among the states and for the nation.

To provide the information needed for research and library development at the local, state, and national levels, the state library agencies should collect and publish data comparable among the states. This in turn will provide useful national information. The statistical programs should be coordinated with that of the U.S. Office of Education, which has responsibility for nation-wide library data. Comparability can be obtained by agreement among the library agencies of the various states on common statistical definitions.6

The following steps have already been taken to bring about, for library statistics, the kind of system which Webster defines as “a complex unit formed of many often diverse parts subject to a common plan or serving a common purpose; an aggregation or assemblage of objects joined in regular interaction or interdependence.”

1. During the last five years the American Library Association and Special Library Association created, in response to the Library Services Branch request, statistics committees which have given invaluable advisory service.

2. During the last three years the state library and education agencies have cooperated in the distribution and collection of questionnaires (i.e., in 1961 and 1963, education agencies distributed our public school library survey forms; in 1962, 48 state library agencies distributed and collected our public library questionnaires; in 1963, 48 state library or education agencies distributed and will collect college and university library questionnaires).

3. Over the last three years, committees of the American Library Association, Special Libraries Association, Pacific Northwest Li-
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ibrary Association, and American Standards Association worked on a project which will provide the library profession with standardized definitions and terminology in the fields of public, school, academic, and special libraries.

4. Over the last three years the Assistant Director of the Library Services Branch and the Director of the Statistics Field Services Branch of the U.S. Office of Education held one-day meetings in Wisconsin, Minnesota, New York, New Jersey, California, Oregon, Washington, Maryland, North Carolina, Georgia, Florida, Alabama, Mississippi, Oklahoma, Iowa, Colorado, Texas, Arkansas, Missouri, and Illinois to discuss the possibilities of a statistics system and to indicate the funds and/or use of equipment available for data processing of library statistics as a permissible but not mandatory provision of Section 1009 of Title X of the National Defense Education Act. Consequently, a number of states were assisted in the transition of their library statistical operations from manual to machine tabulation techniques.

The cooperation between state agencies and the U.S. Office of Education has taken the following form:

1. Questionnaires were drawn up with the advice of respective committees of the American Library Association and Special Libraries Association.

2. Questionnaires were mailed, in the case of the 1962 Public Library Survey and the 1963 College and University Library Survey, to the state agencies, which forwarded three questionnaires to each respondent in the state—one to keep for its files, one to be returned to the state agency, one to reach the Office of Education.

3. Machine tabulations for each state were sent to the respective state agencies.

4. Punched IBM cards for each responding library were sent to the respective state agencies.

This procedure permitted each state to add additional questions, make its own tabulations at the time the questionnaires were received from the respondents, publish this information either from its own or from Office of Education machine tabulations and printout prior to Office of Education release, engage in additional exploitation of data directly from IBM cards, prepare through IBM cards annual
comparisons for the state, and prepare through IBM cards comparisons of its state with the national development in this particular area of librarianship.

In August 1963, the Council on Library Resources released information concerning the establishment of the Library Statistics Coordinating Project by the American Library Association. The release states:

... overall purpose of the project is the coordination of statistics of academic, public, school, and special libraries on the national, regional, state, and local levels.

Plans call for the compilation of a list of cooperating organizations which would be called upon to take an active part in the study; compilation of a check list of basic items and useful classifications in each statistical field; canvassing to refine the list of basic items and to obtain variations in definitions used for the items, and to eliminate duplication of items among types of libraries; and compilation of terms and definitions for the refined list of basic items.

Plans call for the development of a handbook, to be published, and an operating national program of library statistics. The completion of this project should substantially advance the creation of a nationwide library statistics system since it would assure the use of uniform terminology and definitions.

Closing the Information Gap

It should not be left unsaid that the dearth of information concerning special libraries will now be filled because the Library Services Branch has started on a new series of surveys of special libraries which is planned to be conducted through the same federal-state cooperative framework. In addition, surveys are now being planned by the Office of Education in the areas of public library service to children and young adults, the aging, and school library service in non-public schools.

With continued assistance from state library and education agencies, it can now be concluded that Federal-State library cooperation, which had its beginnings with the Library Services Act, has matured within a decade into a statistics coordination phase. This development has made the creation of an informal, voluntary, nationwide statistics system possible.

A look into the future would lead one to believe that the next phase will see the creation of a nationwide library operations system which
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would in all likelihood consist of two steps. The first would probably be the establishment of several statewide research library systems in some of the more populous states, and the second would consist of their cooperation with our national libraries such as the Library of Congress, the National Library of Medicine, and the National Agricultural Library. Automation, electronic communication, and increasing pressures for quality education will assist in surmounting the still formidable barriers to such complex activities. It would be useless to attempt to pinpoint these developments in time but it seems safe to assume that these efforts will rest on the foundations of the statistical and research coordination which is now coming into existence.

U.S. Commissioner of Education Francis Keppel has emphasized the need for research in education to improve our schools. Using his statement, but applying it to libraries, we may say that libraries have long served research; now let research serve libraries. It is not a matter of whether, through research, we can prove that our libraries are better, but whether, through research and implementation, we can make them good enough.

References

5. Ibid., p. 74.
Publishing the Results of Research in Librarianship

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Research in librarianship, apart from its historical and bibliographical aspects, is fairly recent. And since research and publication of its results go hand in hand, it follows that facilities for publication were largely non-existent, as they were unnecessary, until there was something to publish. Before 1930 we had not a single journal in this country which catered primarily or specifically to the publication of library investigations; since then we have witnessed a significant increase in the number of such journals. I have selected 1930 as the dividing line because in that year the Library Quarterly was established "to fill the need for a journal of investigation and discussion in the field of librarianship." Later it was joined by College and Research Libraries (1939), Libri (1950), American Documentation (1950), Library Trends (1955), Library Resources and Technical Services (1957)—an outgrowth of the Journal of Cataloging and Classification (1943), and the Journal of Education for Librarianship (1960); all of them receptive to scholarly articles and reports of investigation. Today there is no shortage of outlets, and if any piece of investigation fails to find a means of becoming known, it probably was not worth publishing in the first place.

Research, of course, logically precedes the establishment of journals for reporting its results. Once the journals are established they require a steady flow of manuscripts; if the flow is sluggish the journals may have to suspend publication or change their character to become hospitable to articles of a descriptive or speculative sort, and this, in fact, is what has happened in the library field. It is doubtful if we can point to a single periodical whose major articles are devoted exclusively to research reports; once established, the journals go on,

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broadening their scope, and in the process compromising their emphasis on studies that qualify as original investigation. If the research interest dries up entirely, some journals may go out of existence, and those that remain will obviously lose the characteristic that led to their original creation.

But the present offers no signs that research in librarianship is on the wane—quite the contrary. If the master's thesis has diminished in quantitative importance, it has been compensated for by attention to the doctoral dissertation. Thirty-five years ago only one library school offered the doctorate; today seven offer it. Not only this, but a library research center is operating at the University of Illinois and another will soon get under way at California. Funds are being provided by the Council on Library Resources, the foundations, and the Federal Government to underwrite big and small studies of all kinds. The possibilities of research are limited only by our own imagination, abilities, and energy.

Though my assignment is to discuss the process of bringing the results of research to public attention rather than research itself, it will help to begin with an overview of investigations since 1950. In that year the Library Quarterly began its listing of graduate theses accepted by library schools in the United States, and it has continued the record up to the present time. About 3,000 titles have been listed, an impressive number even when we grant that many entries qualify for inclusion only by courtesy and a very liberal interpretation of "research." Many, probably most, are undoubtedly valuable student exercises, not intended for a wider audience; in any event, once listed, they may be obtained on inter-library loan or by photographic reproduction by the rare person who might wish them for consultation or permanent ownership. Many theses deserve a wider audience and could get it if their authors were willing to condense or rewrite them appropriately for publication in a periodical. This, however, rarely happens; instead, the author who wishes wider distribution for his manuscript all too frequently sends it to the editor and expects him to do the necessary selection and rewriting. Alternatively, the thesis, like Thomas Gray's rose, is born to blush unseen, to no one's particular consternation. This is the fate that befalls the thesis in every field of graduate study.

But I want to say a word about the exceptions—the reports of investigations that do come to a journal, and here I should like to draw on my own experience of 18 years as managing editor of the Library

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Quarterly. During this long period it fell to my lot to read hundreds of manuscripts. Some I remember with pleasure, those whose authors had something to say and wrote it down with literary grace. Others I prefer to forget; the words tumbling out like a waterfall but without its compensating beauty, the ideas expressed trivial or half-baked or shrouded in murky rhetoric. Some were inappropriate to the purpose of the Library Quarterly but worth publishing somewhere; still others, in my opinion, were undeserving of print anywhere (but undeserving or not, many of them achieved it).

Librarianship is essentially a discipline of action; its job is to collect and organize materials and to facilitate their use. It is a profession that does not depend upon the writing of its own practitioners, but on the writing of everyone else. This may explain why its “classics” cannot compare in number with those of the conventional intellectual disciplines; perhaps, also, this may account for the limited acceptance of librarianship as a discipline worth a place in an intellectual climate. Yet this need not be so. The library as an institution—public, academic, or special—commands universal respect; its place in civilization is assured, and it deserves a body of professional literature commensurate with its stature.

The obligation for creating such a literature obviously rests with all of us—not only the graduate students in library schools, but their teachers and their future colleagues. No editor can tell them how to write, but if they observed a few simple ground rules, the editor’s life would be easier and the chance of achieving publication would be measurably enhanced. Out of my experience as editor, then, I should lay down six ground rules, all of them obvious but, alas, all of them continually violated.

(1) Every manuscript submitted should be typewritten, double spaced on sturdy paper, and with wide margins. Believe it or not, and every editor should be spared this, I have received hand-written manuscripts and, more often, manuscripts typed single-spaced on flimsy paper. The hard-boiled editor will throw up his hands on receiving such a document, the manuscript with them. Do not load the dice against yourself.

(2) Get a footnote right; a faulty citation leads to exasperation, frustration, and lessened respect for the author. Footnotes are not a bore, and they may be indispensable; the editor cannot and should not be expected to correct careless errors.

(3) If quotations are used, they should be exact. To tamper with
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another person's published prose is dishonest, and the editor may not be able to check the original.

(4) Follow a manual of style, either the University of Chicago Press Manual or the one published by the Government Printing Office. If neither is at hand, examine in detail previous issues of the periodical being courted for a guide to tabular presentation, footnote style, bibliographical references, center, sub- or marginal headings, and the like.

(5) Be sure you have selected an appropriate periodical to which to send the manuscript. The periodicals themselves suggest the type of article preferred, and if they were examined before a manuscript were submitted, a good deal of time and disappointment might be avoided.

(6) Above all, respect the English language. Write simply and clearly, cut out excess verbiage, avoid fine writing, eliminate repetition. The author is seldom his own best critic, and a friendly colleague or relative can frequently spot passages crying aloud for revision or elimination. Almost any manuscript is strengthened by being cut.

These rules, of course, apply to any piece of prose, whether intended for periodical, book, or other medium. Although he was not speaking specifically of theses, but of research reports in general—and by professors at that—Roger Shugg, director of the University of Chicago Press, characterizes them as “. . . too often gracelessly written in the jargon of their subjects, wastefully full of repetition, intolerably dull if not wholly unintelligible to anyone not in the inner circle of initiates. Even the humanists have made a cult of obscurity and carry their explication de texte so absurdly far that all but captive readers are lost through boredom early on the way.”

Over and above form, however, is content; implicit always is the assumption that what is written is worthy, but given intellectual substance and literary form, no manuscript will lack a publisher.

When we consider the more extensive research report, we naturally think of the conventional book, and here too there is no shortage of publishers. Most fortunate is the author who achieves publication in a dignified letter-press format, such as might be given by a university press, the American Library Association, or a trade publisher. Since the audience is almost invariably limited, this type of publishing is expensive and chancy, difficult to achieve unless some form of subsidy is available. We can, of course, point to many books that have reached
letter-press format, and all of us would applaud more like them. But since the conventional university and other presses tend to be discouragingly conservative, there has developed something of a gap between many research reports and their publication; to close the gap, publication in near-print has been widely adopted. Capitalizing on near-print techniques and aiming at the specific if limited professional library market, such presses as Scarecrow and Shoestring have provided the means of bringing us many books which otherwise might never have reached publication. We all have groaned at one time or another over their publications, but we owe them a debt for making them available. The books are anything but inexpensive, and they certainly are not candidates for the Fifty Best Books of the Year exhibit; still, they have performed a useful service. Whether they need to be as expensive as they are is a question of economics. The market is bound to be limited in any case, and it is doubtful if a book priced at $10 would sell appreciably better if its price were cut in half. As I write, I have before me Margaret Monroe’s comprehensive study *Library Adult Education*, published by Scarecrow and priced at $12.50. This 550-page book is printed in photo-offset from typewritten copy, the lines separated by 1 1/2 spacing, and it is altogether readable. It will undoubtedly command a sale to the larger libraries and to library schools, probably also to colleges and universities interested in adult education—in short, an institutional sale. At $12.50 its sales to individuals must be small indeed, but if it were priced at $5 or $6, the chances are that individual sales would still be small and institutional sales not substantially increased. If this is correct, then the higher price is probably justified, to permit the publisher to come out with a fair profit. In the Winter 1963 issue of *Daedalus* Roger Shugg writes: “As matters stand, the publisher of a scholarly book can count at the start of no more than two or three hundred orders from educational libraries. For a scientific or technical book he can expect nearly an equal number of orders from libraries overseas.” Lower prices undoubtedly would improve the situation, but not appreciably.

To what extent will the newer developments in communication affect the publication of library research? To some extent they already have, but the results are too small to make more than a ripple. Take paperbacks. Typically, the paperback is a republication—the rebirth of a classic or best-seller or reasonably popular book, and few library publications would qualify. I know of only one or two—e.g., Butler’s
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Introduction to Library Science, and this was not a research report but an interesting contemplation of the nature of librarianship and its possibilities for objective study. The mass market on which the paperback depends simply does not exist for library literature.

A more promising development is the microcard, and here the microcard series of the Association of College and Research Libraries provides us with real evidence of accomplishment. Initiated in 1953, the series is under the control of an editorial committee which is responsible for the selection of manuscripts to be preserved on microcards. A statement concerning the ACRL publications program indicates that the series "includes works in all fields of librarianship and bibliography which, for technical reasons, are not suitable for publication as an article in a periodical, a letterpress book, or an ACRL monograph. These reasons may be limited appeal as to contents, length, or organization of material. ACRL microcards represent material which should be generally available by reason of quality, but for which there is no other channel of publication. Qualitative standards of style, factual content and intelligent organization of material are the same as those applied to College and Research Libraries and the ACRL Monographs. Manuscripts will be considered in all fields of librarianship and bibliography, not necessarily those which relate to college and reference libraries..."

As of July 1963, 138 titles had been issued and are available. As new titles appear, they are abstracted in College and Research Libraries. There are only 83 subscribers to the series, but, of course, individual cards are also sold. Distribution is, however, certainly not widespread, and the editor reports that though a few titles have sold 150 to 175 copies, the average is 100 to 125. The price of the first 100 cards issued is $1.00 each; the remaining 38 range from 75¢ to $2.25.

The titles that have thus far appeared vary widely; a large number are historical studies, frequently of specialized or limited interest; others seem of more general interest and applicability. Many of them began as master's theses in library schools. Granted that ACRL Microcards are not the ideal vehicle for transmitting the results of research, they are certainly better than nothing. If they are not widely read, well, the same is true in all academic fields, and for that matter the same may be said of most books and periodical articles that achieve conventional publication.

The microcard series serves its function when the research report is considered unsuitable for the other forms of publication, and the
ACRL Monograph series has been mentioned as one possible means of publication. This series, begun in 1952, includes 25 titles, ranging in size from 16 to 208 pages, and in price from 25¢ to $4.25; many of the titles are now out of print. As with the microcard series, many titles, highly useful and informative, are not research reports; but the important point is that the series furnishes an opportunity for research publication. Distribution is handled through the Publishing Department of the American Library Association, and there are about 700 standing orders. Clearly, in spite of microforms and lower prices, we are still more comfortable with the conventional form of presentation; I doubt if, qualitatively, there is any superiority in the monograph over the microcard series. Each manuscript is read by at least two persons, and if acceptable to them it must be further screened by the ALA Publishing Department. The present editor of the series writes that the only real problem is one of obtaining manuscripts for consideration. However, he does cite other difficulties, such as excessive wordiness in the manuscripts submitted, bad writing and organization, faulty citations, and similar grievances that seem endemic.

Hardly in the field of publication, but certainly related to it, is the microfilm. It is now fairly general practice for all doctoral dissertations to be made available on microfilm, one copy deposited in the Library of Congress, another in the degree-conferring university. The negative is subsequently used for Xerox copies for any individual or institution wishing to purchase them. The price at the University of Chicago is 5¢ a page. Thus far this method of reproduction and distribution has not been very important, quantitatively, in library research, since the total number of library school doctoral dissertations is relatively small, and most of them manage to achieve publication in some other form. In any event, the microfilm contains within it certain defects which tend to militate against its wide use except as a substitute for conventional presentation. As Rush Welter points out in his monograph Problems of Scholarly Publication in the Humanities and Social Sciences, micropublication creates eyestrain, defies easy handling and contemplative reading or re-reading, and precludes useful marginal notes and memoranda. Nevertheless, I shall return to further consideration of microreproduction later.

One of the complaints repeatedly heard is that the results of library research, though eventually published, are so long delayed as to militate seriously against their utility. The complaint really is twofold: not only are the investigations late in getting published, but the raw
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data used in research are themselves frequently out of date by the time they are made available. This is particularly serious in a period, like the present, when changes take place so rapidly that the figures reflecting 1960 are obsolete two or three years later. Of course this situation is not unique to library data; after all, census data are not exactly up to date either. But if the problem cannot be solved to everyone's satisfaction, at least the situation is being rapidly improved, thanks to the energy and expansion of the Library Services Branch in its data-collecting and publishing programs. I need not review the complete program of the Library Services Branch, but I should point out that its periodic complete reports for libraries of different kinds provide a useful basis for comparison, not only on a geographical but on a temporal basis. We are in an ever better position to see how one library or one state or region compares with others, and also how individual institutions and states grow or diminish in their library programs from one year or decade to another. The Library Services Branch is now engaged in cooperating with state library agencies to make its data speedily available, in the expectation that the national figures will be supplemented by statistics collected in each state. This development is extremely promising, and should open the way to fruitful investigations.

There still remains the problem of quickly making available the results of research. I do not know how serious this problem is; but I suspect that once we know about a study we can gain access to it long before it is published. Here, too, the Library Services Branch is helpful, particularly through its publication Library Research in Progress. Anyone who is interested in current investigation can keep up with it through this publication, and frequently the study itself—methods and results—can be consulted long before it reaches publication, if it ever does. This is not a substitute for speedy publication—I see no prospects for much relief here—but a means of getting access to the study itself, which, after all, is the basic consideration. I should draw attention also to the publication by the Library Services Branch of Library Science Dissertations, 1925-60, containing titles and abstracts of doctoral dissertations written in library schools and also of dissertations that deal with library matters regardless of their provenance. And here it might be appropriate to refer once more to the annual listings in the Library Quarterly of master's and doctoral dissertations accepted by library schools, as well as the listings in Library Literature, usually accompanied by abstracts.
Still another source of knowledge about research is the Palfrey and Coleman Guide to Bibliographies of Theses, United States and Canada, the second edition of which was published by ALA in 1940 but is now out of date and out of print. However, a new comparable publication, prepared by Dorothy Black of the University of Illinois, will be issued in 1964 by ALA. This will list theses by subject and by institution, and will include theses in library science as well as theses in other fields. With this in hand, supplemented by the contemporary listings already noted, no one should have cause to complain that he is unable to find out what library research has been undertaken or is currently in process.

Other avenues for research publication are provided by library schools. Much of the research that takes place in the schools reaches publication through the media already described, especially when the school itself serves as the publishing spur behind a periodical or series. But we should note the "Occasional Papers" of the University of Illinois Library School as well as the "Research Report" series by that school's Library Research Center and the Illinois State Library. Many of the papers deserve much better than the mimeographed format usually employed; the use of photo-offset from typewritten copy is a considerable improvement, especially if the typing is double-spaced and a firm binding is provided. The library school at Rutgers has been unusually active as a publisher; one immediately recalls the "State of the Library Art" series and Metcalf's Studies in Library Administrative Problems, the latter an outgrowth of a seminar conducted for eight experienced librarians. The library schools frequently issue the studies conducted by their faculty members, usually in mimeographed form.

We hear a great deal these days about the possibilities of using electronic and technological devices for the storage and retrieval of information, and enough progress has been made to remove the prospects from the realm of the theoretical. I do not contemplate such a rich flowering of library research as to require its preservation in such esoteric forms; still, the development is important enough to warrant some attention to it in our present deliberations. I recently received a catalog entitled "Basic Collections in Microeditions: Slavonics" issued by the International Documentation Centre in Tumba, Sweden. The introduction pointed out certain problems with which we are familiar, such as scarcity of the extant literature, deterioration of poor paper, high prices, etc., and then noted the organization of a project for com-
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Piling a systematic microfiche and opaque-microcard collection of all basic literature in the field. A systematic bibliography in Slavonic is to be compiled, and the works listed are to be microrecorded and made available along with a portable reader (priced at about $100). Of course, at first only a handful of libraries will find it necessary to take advantage of these microforms, but in time, as other subject areas become represented, all scholarly libraries will have to deal with them. Some people have become so enamored of this development that they contemplate the disappearance of the conventional library altogether. One group in Park Forest, Illinois, has already announced the creation of a "bookless college library" as a feature of a contemplated liberal arts college, utilizing 3" x 5" slides similar to microfiche, each containing 64 pages of text, and providing each student with a projector for his "slide reading." One of my colleagues has suggested that the first addition to this college will be a School for the Blind; anyone who has spent much time with microfilm or microcards will sympathize.

Carried to such extremes, the idea seems preposterous, but I do not anticipate such extremes either in Park Forest or in any other library. Still, we cannot close our eyes to what lies on the horizon, and, appropriately, I refer to a recent article in the magazine Horizon by John R. Platt, a physicist. Platt reminds us that every new form of preservation, from the cuneiform inscription on the clay tablet to the papyrus roll to vellum and paper books to printing with movable type, must have been regarded with suspicion and met with resistance. In our own day we can certainly recall the quizzical look we formerly cast on microfilm (many of us still do). Yet all of these changes have marked a stage in progress, and the end is not yet in sight. The microfilm gives us a reduction of 40 to 60 times in page area; the microcard, a reduction of 500 to 1,000 times. But, Platt, asks, why stop here? He envisions the application of the "microdot" system in which a page is photographed down "... to the smallest size at which the individual letters can still be read through a high-powered optical microscope" so that each page is reduced in area by as much as one million times! Even this is not the limit; he sees the possibility of an electron microscope reduction, shrinking each page to one micron by two microns in area. A micron is the thousandth part of one millimeter, or the millionth of a meter. Translating this into understandable if inconceivable terms, 1,000 books of 500 pages each could be inscribed on the head of a pin!
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So speaks the physicist, and the picture is a forbidding one. But forbidding because it seems to obliterate the act of reading as we have always experienced it, and Platt, who is a very civilized person, recognizes its limitations. Let me quote him once more: "The trouble is that the advantages of microstorage are institutional, while its disadvantages are personal. We have come to enjoy the sensory pleasures we have associated for the past few hundred years with the life of the intellect—the pleasures of browsing among the shelves, of handling real books and smelling the print, of flipping through the pages to look at the pictures or the endings. . . . Some of us may fear that if we now have to read microbooks only on projection screens, the literate pleasures will vanish completely. It may be research, but it is not reading." 9

Fortunately for our eyes and comfort, we may still contemplate the publishing of library investigations in conventional form. Certainly there exist plentiful opportunities for achieving publication; the real problem is not here, but rather, as the editor of the ACRL Monograph series points out, in the production of research worth preservation. It may not be amiss, therefore, to suggest a few areas in which investigations might fruitfully be pursued, preferably in library schools but not limited to them.

Public library structure and organization offers a good field for study, provided we or our students are willing to collect original data, or even to use the data being made available by the Library Services Branch. We ought to have state by state studies showing how library service has developed in time, how it has been affected by population movements and by the vicissitudes of economic pressures and by developments in educational facilities. Do we have a good library history for a single state comparable, say, to Gwladys Spencer's history of the Chicago Public Library? Shera, Ditzion, Thompson, and others have given us good general histories on a national or regional basis. We should all welcome intensive and incisive state library history, not in the sense of chronicle or antiquarianism, but rather in the sense of relating library developments to social forces. This suggestion has been made many times, but in our zeal for contemporary description we all but ignore our true history. The more we know about how we got where we are, the clearer we may plan our future course, and the better we may understand why achievements in, say, New York, are not possible in the Dakotas or even in Illinois.

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Even in contemporary terms the field is wide open for studying library structure in relation to use. Consider the familiar large-unit concept. What actually happens in a community when its library, formerly completely independent, becomes part of a system? How, if at all, is the pattern of reading, of book use, affected by the change? Does the availability of a larger and more diversified book stock affect the character of reader demand? We have some relevant data from the New York systems, but much more intensive analysis is clearly desirable. In city systems one may ask if the establishment of an elementary school library in a neighborhood formerly served only by a branch of the municipal library affects the use of the branch. Has reading as a whole increased; has dependence shifted from the branch to the school library; has the character of children's use of the branch changed, and if so, how? To mention another significant area, there is the metropolitan problem, the dependence on the central city library by nonresidents. A student in the Graduate Library School at the University of Chicago has found that in one metropolitan area nonresident withdrawals from the main library alone constituted nearly a third of all loans in a single week. Is this figure higher or lower than would be found elsewhere, and what are the implications for cost, personnel, book stock, and, even more, for a shift in the concept of library support? And finally, can we get more precise information on the use of state library agencies—to what extent do they supplement local services, for what kinds of books, for what classes of people, and for what types of community? These are not idle academic questions; they have implications for libraries everywhere, and especially for those in the profession who are seeking a sound basis for expansion of library facilities and for the intelligent use of available and potential funds. Library schools should be in the forefront of such investigations, and the profession in time should look to them not only to solve personnel problems but for the facts and solutions that administrators have neither the time nor the responsibility to collect.

This leads me to another area of study—education for librarianship itself. We are all aware of the somewhat chaotic proliferation of library education programs, and of the present hopes for formulating a national plan which would lend some coherence to library education nationally. It is anyone's guess as to whether anything will come of this, but whether or not it does, the problem is worth tackling. Merely to toss out a few questions which seem relevant to me: Is
there a substantive difference between undergraduate and graduate library education, and what is the difference, if any? What do we mean by a good library school, and how does it differ from one less good? Do such differences show up in the product—and should we even look to the product as the criterion? What characteristics in their faculties seem important? How do the faculties compare in their scholarly productivity, their contributions to the profession, their impact on society? Is there a real difference in education for librarianship of different types, and are there some areas of librarianship where conventional library training is altogether irrelevant, or where a different type of training is called for? Here too it is possible to suggest numerous other questions where inquiry should be encouraged.

The question of library censorship is one that continually intrigues library school students; after Fiske's study, there seems to be little to investigate except the presence or amelioration of book-banning beyond California (or even in California, five years after Fiske). When we move outside of library censorship to censorship in general, we run into matters of law, religion, and sociology, requiring somewhat specialized techniques and sophistication of a kind our students rarely possess. The present literature is of course extensive, heavily repetitious but rarely dull. As far as library research in censorship is concerned, I doubt if we can do much beyond identifying its prevalence and pin-pointing the conditions that bring it about. It might be a matter of curiosity, if no more, to study censorship against a library's official statement of its book selection policy. We have often said that every library should have such a policy in writing, without stressing that the policy is more important than its codification; but given a written policy, what is its relation to the facts of book provision? The answer to this question might not affect library practice, but at least it would enable us to ask, if discrepancies between the two exist, the reasons for them. I do not mean to imply that the answer is easy, since so many factors are involved in book provision, among them money, board members, the librarian's predilections and prejudices, the character of the community. Still, it is an interesting field for study, and it might be worth identifying the specific factors that interfere with a library's decision to buy or not to buy.

Censorship, however, is only one aspect of book provision, and is by definition negative. The positive side is much more important, and here I should like to know much more than we do now about the
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books available through libraries in neighborhoods and communities of different size and type, as well as more incisive information on book use beyond the demands of school assignment. We take it as a matter of faith that the library stands four-square for open access where anyone may encounter ideas of whatever novelty, peculiarity, or conventionality incorporated in print. We know, in fact, that there is often a vast gulf between what the library stands for, what it would like to do, and what it actually does. Suppose we were to have a series of investigations in widely varying communities centered on availability, duplication, and shortages; how provision affects use; and whether library limitations as we conceive them have much, if any, effect on the number and kinds of people we attract. We may well find that in some communities our libraries are little used, not because they are remiss in book provision but because the potential audience is indifferent. If this is the case, I do not see how more and better books can affect the reading pattern appreciably. This is not to say that our libraries generally are as good as they need be; I am sure they are not, and I am well aware that many have too little to stir up interest or to permit satisfying an already stirred-up interest; still, I am frequently impressed with the high quality of even small libraries that seem to receive little use. Studies of use in relation to resources would, I believe, contribute a good deal to what we used to call the sociology of reading, a field that seems all but completely neglected at the present time.

From this topic I turn to one in which there is very little basic investigation in spite of its overriding importance—library finance. Some excellent material has been produced, notably the recent Sokolow study of Community Determinants of Library Tax Incomes in Illinois, but surely much more remains to be done in the conduct of similar studies in other states, and in budgeting, expenditures, bond issues, and above all in unit costs. Over 30 years ago, Leland noted the need of such investigations, but we have produced precious little along these lines. I doubt if there is any other single area in which librarians would welcome assistance so much as in this one.

These few suggestions are simply indicative and anything but exhaustive. I have included them primarily to lend support to the pleas so frequently expressed by the publishers of research—the editors of library periodicals, the producers of monograph and microcard series, the library press in general. There is no problem of outlets; the only problem is the production of materials worth publishing.
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We may hopefully conclude that conferences like this one will help to bring about such materials.

References

2. Ibid., p. 71.
8. Ibid., p. 42.
9. Ibid., p. 43.
Darwin, Bacon, and Research in Librarianship

J. H. SHERA

"When on board the H.M.S. 'Beagle,'" wrote Charles Darwin in the introduction to The Origin of Species, "... I was much struck with certain facts in the distribution of the organic beings inhabiting South America, and in the geological relations of the present to the past inhabitants of that continent." ¹ Darwin surmised that these facts might throw some light on "... that mystery of mysteries, ..." ¹ the origin of species. Therefore, upon his return home, he began his inquiry "... by patiently accumulating and reflecting on all sorts of facts which could possibly have any bearing on it." ¹ First he turned to that which was immediate—the plants and animals of the farm and barnyard—and comparing them with their kind "... in a state of nature; ..." ² he reflected that the lesser variability to be observed in the wild might be "... due to our domestic productions having been raised under conditions of life not so uniform as, and somewhat different from, those to which the parent species had been exposed under nature." ³

Here we cannot, of course, trace out in its entirety the thread of Darwin's argument, though it would be most instructive so to do, for in it is to be seen the almost perfect representation of the research process. Darwin was probably not aware that he had embarked on "research"—though in his Autobiography he speaks of his mind as "... a kind of machine for grinding general laws out of large collections of facts ...", ⁴—or that he was engaged in any recondite enterprise. He was simply following the admonition of Francis Bacon, from whose Advancement of Learning he quotes on one of the fly-leaves of the Origin:

"To conclude, therefore, let no man out of a weak conceit of sobriety,

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or an ill-applied moderation, think or maintain, that a man can search too far or be too well studied in the book of God's word, or in the book of God's works; divinity or philosophy; but rather let men endeavour an endless progress or proficience in both."

He also quotes from Whewell's Bridgewater Treatise:

"But with regard to the material world, we can at least go so far as this—we can perceive that events are brought about not by insulated interpositions of Divine power, exerted in each particular case, but by the establishment of general laws."

Shorn of its mysticism and its methodology, research since (at least) the time of Bacon has been an answering of questions by the accumulation and assimilation of facts which lead to the formulation of generalizations or universals that extend, correct, or verify knowledge.

One cannot talk about the philosophy of modern research without going back to Bacon, for every serious investigator of natural and social phenomena since the seventeenth century is deeply indebted, consciously or unconsciously, to Baron Verulam, Viscount St. Albans. But Bacon's insistence upon strict application of the experimental method for discovering the facts of nature has now been so fully absorbed into modern scientific practice, and has become so commonplace with the passage of time, that one is apt to forget that Bacon was really protesting the haphazard accumulation of observation. He knew, of course, that experimentation had been practiced long before his time; but, as he wrote, "... the manner of making experiments which men now use is blind and stupid ... wandering and straying as they do with no settled course, and taking counsel only from things as they fall out, they fetch a wide circuit and meet with many matters, but make little progress. ... [They] make their trials carelessly, and as it were in play ..." The true research worker does not embark on a fishing expedition. Chemists do not make random mixtures to see what will happen, nor do biologists thrust under their microscopes the first living organism that comes to hand. Experimentation comes after hypothesis, not before it. Indeed, one can agree with Pierce Butler that "... there is no such thing as scientific research until a theoretical hypothesis has been formulated." To be sure, Darwin's curiosity was aroused by his observations of variety in species, but he did not begin his systematic study of its manifestations in domestic animals and plants until he had hypothesized the outcome of his inquiry.
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But it was Bacon who established the pattern. "For hitherto," he wrote, "the proceeding has been to fly at once from the sense and particulars up to the most general propositions, . . . my plan is to proceed regularly and gradually from one axiom to another, so that the most general are not reached till the last. . . ."7 Again, he wrote in one of his most famous passages, "The men of experiment are like the ant; they only collect and use: the reasoners resemble spiders, who make cobwebs out of their own substance. But the bee takes a middle course; it gathers its material from the flowers of the garden and of the field, but transforms and digests it by a power of its own."8 Clearly, to be an effective research investigator one must resemble the bee—purposeful, industrious, and imaginatively selective in the assembling of evidence.

Moreover, for an inquiry to qualify as true research, its results must be generalizable. Darwin's work had implications, applications, and consequences far beyond the boundaries of biology, and Bacon well knew that "axioms rightly discovered . . . [will] draw after them trains and troops of works."9 This criterion that the results of investigation must be generalizable raises again the age-old problem of pure as opposed to applied research. The fallacy of the dichotomy rests in the assumption that these terms are absolutes, that they are discrete. Research is no less "pure" for leading to useful results, though it most certainly does not have to possess immediate applicability to qualify as research. Bacon, the practical politician and public figure, was suspicious of the tendency of human beings to engage in the artificial kind of speculation that leads nowhere; he wanted all scientific activity to be well established on the bedrock of concrete problems: " . . . On account of the pernicious and inveterate habit of dwelling on abstractions, it is safer to begin and raise the sciences from those foundations which have relation to practice. . . ."10 Yet Bacon was not unmindful of the value of those inquiries which have no immediate applicability, but represent the pursuit of knowledge for its own sake: Science should be willing to carry out " . . . a variety of experiments, which are of no use in themselves, but simply serve to discover causes and axioms; which I call 'Experimenta lucifera,' experiments of light, to distinguish them from those which I call 'fructifera,' experiments of fruit."11 Such experiments possess the great advantage that " . . . they never miss or fail. For since they are applied, not for the purpose of producing any particular effect, but only of discovering the natural cause of some
effect, they answer the end equally well whichever way they turn out; for they settle the question."\(^{11}\) Man can maintain his domination over nature only by understanding the secrets of nature without regard to immediate and practical ends. "Truth therefore and utility are here the very same things: and works themselves are of greater value as pledges of truth than as contributing to the comforts of life."\(^{12}\)

Thus from both Darwin and Bacon we learn that research in its generic sense is much more than a method or system of methods, a technology, or a body of practice. Though it may involve any one or all of these, it is not defined by them alone. Nor is it to be equated with invention, with which it is so frequently confused by the layman. It is an intellectual act that begins with the asking of a question (emerging from an awareness of one's ignorance) and progresses through the critical examination of evidence that is both relevant and reliable to the revelation of truth that is generalizable and universal. Its goal is the perfectability of human knowledge through the pursuit of truth, a goal that can never be attained, but which must always be assumed to be attainable. The more deeply we penetrate into the nature of the atom, Enrico Fermi once observed, the more we are aware that Nature always keeps two jumps ahead of us. He was saying, albeit graphically, no more than that the search for knowledge is interminable, that it has no end, that there is always some place else to go. This is not the counsel of despair, but a challenge to initiative.

Described in terms of its sequential acts, research is an intellectual process whereby a problem is perceived, divided into its constituent elements, and analyzed in the light of certain basic assumptions; valid and relevant data are collected; hypotheses (if any) are through objective testing, rejected, amended, or proved. The generalizable results of this process qualify as principles, laws, or truths that contribute to man's understanding of himself, his works, or his environment. Stated another way, research is the systematic attempt to discover new facts or sets of facts, or new relationships among facts, through the formulation of a preliminary explanation or hypothesis which is subjected to an appropriate investigation for validation or disproof.

The only rule that governs research is the rule of objectivity. Research is the stern disciplinarian that it is, not because it is recondite or esoteric, but because it leaves no place for the subjective. Yet it is pursued by human beings who are themselves inescapable complexes of both reason and emotion, and in research the latter must be suppressed if the former is to prevail. Reasoning or observation that is
diluted with emotion becomes sophistry or dogma. We submit that these are particular threats to research in librarianship, for librarianship is dominantly a service, and a service is always in jeopardy from emotion. The librarian means to do good, and by dint of self-sacrifice and hard work he does what he means to do, and therefore that which he does is good.

It was Ralph A. Beals who categorized library literature into the tri-partite classification of Glad Tidings, Testimony, and Research, finding precious little of the last. This poverty of research in librarianship was explained by C. C. Williamson, in an address delivered at Western Reserve University in 1930 and subsequently published as the opening essay of the first issue of the *Library Quarterly*, as a consequence of the fact that librarians are basically empiricists, untrained in research and the scientific method. There exists, he charged, "... a deep-rooted prejudice among library workers against subjecting their activities to scientific scrutiny." This was undoubtedly the attitude of the typical librarian in 1930, and there is still much of it today. Research is emotionally disquieting, it does question old beliefs and sweeps aside tradition, often leaving in its wake disbelief, uncertainty, and shattered ideals.

Yet, despite the librarians' conventional antipathy for research, at the University of Chicago in the decade of the 1930's, some progress was made in laying a solid foundation for the application of research to the library as a social invention. Pierce Butler attempted to formulate the principles of a science of librarianship; Carleton Joeckel encouraged studies in the application of the techniques of scientific management and administration to the operation of libraries; William Randall focused the attention of his students upon the application of theories of the organization of knowledge to principles of library classification and bibliographic organization generally; Douglas Waples went beyond librarianship to the fundamental problem of the social effects of reading. And Dean Louis Round Wilson set forth, in *The Geography of Reading*, the social, cultural, economic, and other environmental influences related to the geographical distribution of libraries and library resources.

The advent of the Second World War exerted two powerful influences upon research in librarianship. First, it abruptly terminated the developments at Chicago by dispersing the faculty, and from this interruption the program initiated by Wilson and his colleagues never really recovered. Second, the War raised research in general to such a
high level of prestige, and rewarded its practitioners with such rich endowments, that librarianship was forced into a form of activity which had been largely alien to the profession and for which librarians generally were certainly unprepared. To this pressure for research, librarians responded in a variety of ways, and most of them hastily devised and ill-considered. The library schools began to talk glibly of research and to establish courses and seminars in library research and research methods. They substituted for the fifth-year bachelor's degree the degree of Master of Science in Library Science, and they rushed all unawares into doctoral programs. Wanting desperately to "do research," they looked to such fund-granting agencies as the Federal government and the foundations, and the response to their applications was surprisingly generous. Dollar diplomacy came to librarianship, with research as the key by which the coffers of wealth were to be unlocked. One can scarcely blame the librarians—even a starving man will founder if his normal diet is not restored by degrees, and librarians had been hungry for a very long time.

Because research had for so long been foreign to librarianship, when librarians did take the plunge, they became over-enthusiastic converts to method. Librarians, as John Livingston Lowes once wrote of the humanists, tended "... to become enamored of the methods, and at times to forget the end; to allow, in a word, the fascination of the means to distract [them] from the very object for which they are employed." Because librarianship used as a model the methods of social science research, it relied so heavily upon statistics that, for a time, research in librarianship came to mean, almost inevitably, statistical investigation; and the value and significance of a research project came to depend upon the demonstrated degree of skill in statistical manipulation.

Because the methods and techniques of librarianship itself had been empirically derived, it is not surprising that research in librarianship was also empirical at first. As a result, much library research has been little more than what Beals called "testimony," the implications of which are almost always personal and hence likely to be idiosyncratic. The evidence offered in support of testimony is experience, usually undifferentiated experience consisting of impressions and appraisals of complex phenomena by those whose predispositions tend to favor ex parte conclusions.

While in some situations valid experience rightly interpreted can contribute to the research process, yet of much library research one
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cannot but wonder whether the process of winnowing the data has been carried far enough to yield wholly trustworthy results; whether the size and character of the sample are such that the results can be reliable; whether the reporters of the data were skilled analysts and observers; whether conditioning factors had been isolated and appraised with accuracy; whether central tendencies had been slighted in favor of the picturesque, the unusual, or the fortuitous; and finally, whether the conclusions reached would be respected by qualified authorities. To be sure, for the solution of many stubborn library problems, undifferentiated experience is the only source of information available to the investigator, but it requires careful scrutiny and judicious appraisal if it is not to be misleading.

Because of the empirical character of library research, and its excessive dependence upon local observations and limited data, more frequently than not it is provincial and parochial rather than general in applicability. In the terminology that Douglas Waples was wont to use, such investigations tend to be "service studies" rather than true research. Not without some justice has the librarian's preoccupation with the trivial brought down upon him the ridicule of the Arthur Bestors and the condemnation of the Abraham Flexners. Yet librarians cannot be entirely condemned for the quantification of localized experience—into that trap the social sciences fell before them, and even the physical sciences were by no means immune to the lure of counting masquerading as objectivity. In 1906, the University of Chicago catalog observed, "... it seems probable that most of the grand underlying principles [of physics] have been firmly established, and that future advances are to be sought chiefly in the rigorous application of these principles to all the phenomena which come under our notice. It is here that the science of measurement shows its importance. ..." 18

An eminent physicist has remarked that the future truths of Physical Science are to be looked for in the sixth place of decimals. In short, all scientific inquiry, at one stage or another in its journey toward a valid scientific method, has been guilty of that error to which Bacon pointed: the fallacy of investigating "... the nature of any thing in the thing itself. ..." 17

"To restore to intellectual life," writes Arthur Bestor in the Restoration of Learning, "the unity that the forces of modern life are threatening to destroy constitutes one of the most significant tasks to which thoughtful men and women are addressing themselves today." 18 In the modern world of research, the cooperation of scholars and sci-
entists from a variety of disciplines in a team attack upon problems of
great complexity is one of the most distinctive and important features.
Though (as Hertz and Rubenstein have pointed out in their pioneer-
ing study of team research) the research process itself is as old as the
history of man, and though the incessant striving for system in the
solution of problems has evolved the scientific method as it is under-
stood today, the recent introduction of team research represents
organization for the purpose of reducing the uncertainty of outcome
and minimizing the possibility of failure. Team research, then, born
of man's continually growing awareness of the complex interrelation-
ships within the world of knowledge and the interdependence of
phenomena, stands as tacit admission of the essential unity of the re-
search process. Because librarianship itself is concerned with all
human knowledge, the use of interdisciplinary team research for at-
tack upon library problems is especially important and promising.
One can identify off-hand a number of areas in which library research
could profitably seek assistance from other branches of intellectual
activity:

1. Library administration—political science, government, manage-
ment theory, operations, research, systems analysis, personnel man-
agement, budgeting.

2. Knowledge and society—epistemology, cultural anthropology,
social psychology, communication research, social organization, phi-
losophy, library criticism.

3. Education and communication—the structure and operation of
the brain, psychology, the assimilation and utilization of information,
linguistics, the new media, educational theory, communication theory.

4. Man-machine relationships—automation, cybernetics, information
science and systems, logic, theory of classification, scientific method,
structural linguistics.

The areas here designated are intended to be no more than suggestive;
certainly they are not definitive. They may, however, serve to indicate
the opportunity for enrichment of research in librarianship through
synthesis with other disciplines, some of which are themselves quite
new and as yet not fully formalized. One should also point out that in
certain areas (e.g. the neuro-physiological), the librarian can do little
but evaluate the findings of others in terms of their relevance to his
professional responsibilities.

A profession that would know itself—that would anticipate or, to
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use Dennis Gabor's phrase, "invent the future"\textsuperscript{20}—must support and engage in productive research. But research, important as it is, is not the be-all and end-all of human life, or even of human professional life; and every librarian does not have to be a "researcher" in order to prove the hairy-chested masculinity of the profession. Research is too important to be left to dilettantes and amateurs, and its pursuit should be reserved for those who are qualified for it by aptitude, education, and motivation.

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Each issue is concerned with one aspect of librarianship. Each is planned with the assistance of an invited advisory editor. All articles are by invitation. Suggestions for future issues are welcomed and should be sent to the Managing Editor.

Published four times a year, in July, October, January, and April. Office of Publication: University of Illinois Graduate School of Library Science, Urbana, Illinois. Entered as second-class matter June 25, 1952, at the Post Office at Urbana, Illinois, under the act of August 24, 1912. Copyright 1984 by the University of Illinois Board of Trustees. All rights reserved.

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