MANUAL ON
RESEARCH AND REPORTS

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A guidebook of procedures helpful in conducting investigations and presenting reports on subjects in the fields of the social sciences

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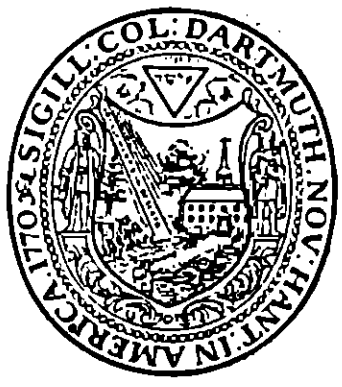

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PREFACE

The preparation of research reports is an activity engaging an ever-widening group of people. In collegiate and university instruction there is an increasing reliance on term papers and theses requiring independent study; in economic and social programs there is a growing use of factual and technical surveys; in business operations there is more frequent recourse to investigations and analyses embodied in written memoranda and reports. There has thus developed a place for compact and nontechnical manuals of suggestions for the guidance of those who have occasion to prepare research reports.

The present publication attempts to make available such a manual covering some of the principles of procedure and style of common aid to persons working in the field of business, economics and the social sciences in general. In its present form it is an extended revision of the *Manual on Research and Reports* originally published by the Tuck School in 1931, but it limits itself, as before, to the preliminary procedure and mechanics of investigating a subject and to some of the important standards to be observed in presenting the findings. In order to keep this handbook within a manageable size, its scope and content have been purposely restricted and points which might interest chiefly the experienced or highly specialized investigator have been omitted.

The preparation of a working manual of this character necessarily presents questions of alternative practices in methods or style on which authorities themselves differ. While the decisions made here on such matters are in most instances supported by standard treatises, they are put forth not as rulings but as preferences. The suggested procedures in research are based largely on the first-hand experience of members of the Tuck School faculty and of others who have been consulted.

The members of the research and reference staff of the Baker Library at Dartmouth College have read the manuscript and proof and contributed excellent advice. Appreciation for their valuable aid is gratefully recorded.

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CHAPTER I

LAYING THE GROUNDWORK

The problems one encounters when engaged in preparing a research report are so vitally related to the nature and scope of the subject studied that decision on a suitable topic is of primary importance. Counsel on this matter should be sought by the investigator but it is difficult to supply such aid without reference to all the circumstances which may be involved. Questions regarding the subject to choose arise chiefly, however, in academic work. In these cases, presumably, assistance is offered by the faculty, and the decision is made in accordance with the requirements of the institution. In most other cases the investigation is dictated by some practical need or special interest rather than by random choice.

Social research is valuable not only because of the results which it may bring to society but also for the training it may afford to individuals in disciplined thinking and effective presentation. Although no attempt is made here to offer advice on the choice of a subject, methods by which the investigator may

improve his comprehension of the problem and his capacity to handle it do require attention. Consequently, the discussion commences at the stage where the field to be investigated has been tentatively decided upon, but the plan, scope, and procedure are still somewhat indefinite in the mind of the person who is to do the work.

1. Defining the Problem

Clarification of the nature and purpose of the problem to be studied constitutes a first step in undertaking a research project. A good beginning is to test one's understanding of the task by giving an exact and comprehensive title to the study. This effort will prove a valuable discipline, and will tend of itself to force careful thinking with regard to content and objectives.

For this purpose the title may be longer and more technical than it would be in later drafts. Since it is intended merely as a precise and temporary statement of the problem, it may not meet the standards recommended in a later section on "Titles and Subtitles," such as, for example, capacity to arouse interest. In later stages of the manuscript the title may be cut or reworded in accordance with the effect desired.

The immediate need in the study is a title which answers the questions What? Where? When? and What for? An example of a good tentative description of this sort is: "Statistical Analysis of the Ages of Applicants for Public Relief in Albany, N. Y., during 1932–1935." A good subtitle might be: "A study made for the purpose of determining the percentage of

relief cases which might be eliminated by public pensions starting at certain specified ages." Such a combination of titles is not only helpful to the writer in making his subject definite, but is also of aid to those whom he consults, since it gives a more concise idea of what he is after.

The preliminary definition should now be followed by a further attempt to determine the main features of the study and to focus the lines of inquiry. The best way to do this is to prepare a tentative working outline. No matter how inadequate, this preliminary analysis will give a tangible form to the study which will more clearly reveal its objectives and its scope.

2. Constructing the Preliminary Outline

An outline is not to be confused with a brief. Ordinarily, a brief is a finished organization of the main findings resulting from a study or the constructed argument designed to convince someone of the desirability of a certain point of view or course of action. In the hands of a lawyer, a brief may be the last written form which his material takes.

A preliminary research outline, however, is a simple and informal listing of the points to be investigated. It is an attempt to lay out the pertinent aspects of the problem in main divisions and subdivisions. It may consist of a series of specifically worded titles or topics, of a series of main questions and subquestions, or of a combination of both these devices.

Such an outline should be thoroughly impartial in its scope and purpose. Every problem should be

approached as an open question to which there are a variety of solutions. Bias should not be permitted to limit the scope of one's investigation or to confine the search for material to data which will fit preconceived notions.

The outline should be drawn up in the way that will be of most practical use in defining the problem for the investigator. Its value lies in indicating the type of material to look for and in providing a temporary basis for organizing the facts as they are collected. The preliminary outline will, in most cases, be revised at various stages of the investigation.

In the beginning one usually does not know enough about a subject to make a good outline. This should not discourage the investigator from making the attempt. The difficulty lessens when one takes steps to become better acquainted with the subject. This can be done most easily by an examination of what has already been written in the field.

3. Surveying the Published Material

The next task, therefore, is to make a survey of published material and other accessible data dealing with the subject. It is this preliminary type of investigation to which the rest of the chapter will be devoted, leaving the matter of other forms of inquiry to later sections.

A preliminary survey of available material is extremely important in research. If the investigator disregards these sources he will, in all probability, waste his time, and that of others, in seeking facts which are

already available in books, bulletins, pamphlets, articles, private memoranda, and reports. The value attached to the bibliographical approach even in inventive work may be illustrated by the following statement once made by Thomas A. Edison:

> When I want to discover something, I begin by reading everything that has been done along the line in the past; I see what has been accomplished by great labor and expense in the past; I gather the data of many thousands of experiments as a starting point, and then make many thousands more.[1]

To acquire such a background one must know how the available facts published are most quickly discovered. The investigator must learn to do this for himself and thereby acquire that independent skill in locating information which is a sign of genuine training. For this purpose his first recourse should be to certain standard sources of reference which give a key to publications available on a subject in the country at large or, for that matter, in the English-speaking world.

In contrast with the suggestions made in other guidebooks, the procedure recommended here leaves almost to the last the use of the card catalog of a local library. In any particular community the library may be inadequate or may be deficient in the material necessary for the problem studied. The library card catalog itself may be poorly done. Thus the local library may merely be the means of quickly obtaining reference material immediately at hand, but it is more

[1] J. EIGELBERNER, *The Investigation of Business Problems* (New York, McGraw-Hill Book Company, Inc., 1926), p. 116.

likely that a comprehensive view of the literature will be afforded by the indexes recommended below.

4. Preparing the Bibliography

The investigator who begins the study of a subject usually wants to know what material has been published on his problem during recent years, or even during recent decades. He will need to know who has issued it and where it may be obtained. There are so many people who want aid of this kind that various public organizations, as well as commercial agencies, have prepared indexes and reference works providing this information. These publications list the available books, pamphlets, and articles on a wide range of subjects and thus provide short cuts in the preparation of a bibliography. The nature of some of the best known of these indexes will now be described. One who is engaged in research will find them indispensable.

The discussion will begin with a few of the individual indexes of material which the investigator in almost any field within the scope of this manual will wish to consult as a starting point in his research. Since these will not include all the possibilities, the description will be followed by mention of the more all-inclusive sources of reference which might be used in case the suggested indexes prove inadequate for specialized purposes.

a. The More General Indexes

The Public Affairs Information Service is the most helpful guide to printed material on public questions. It is confined to publications in English and it does not

include material published in newspapers, or in certain specialized or technical publications, but it does index most books, pamphlets, periodicals, or articles in periodicals, within the broad range of government, economics, and social subjects in general. It is, therefore, a guide to material issued by the state governments, by departments of the Federal government, by chambers of commerce, by research organizations, by individuals, and by publishing firms here and abroad. The P.A.I.S. is issued weekly and its volumes are kept up to date by monthly, bimonthly, and other cumulations, with final cumulations every year.

The Readers' Guide to Periodical Literature is a monthly index of articles appearing in a large number of periodicals read by the general public. The index thus enables one to know what has been written in any of these magazines on a particular subject. An excellent feature is that the authors of the articles are also indexed. There are monthly issues, bimonthly, and semiannual cumulations, annual volumes, and cumulative indexes covering a number of years.

The New York Times Index is a notable source of vital information. The *Times* has for many years published a reference guide to the items appearing in its columns. Until 1930 the index appeared quarterly, but has since appeared monthly, as well as in annual cumulative volumes. The *Times* is the only American daily newspaper of national circulation publishing such a reference guide.

An index of items published in a daily newspaper is valuable not only in tracing the history of any sub-

ject over a long period but also in supplying the dates of events which may be more completely described in other newspapers, such as small local papers. An event occurring in a Western community may be called to attention by the *Times* index, but the item may be small. Knowing the date, however, one may consult the files of the local papers of that community or the files of large or important newspapers in the vicinity.

One caution worth mentioning here for the beginner is that the index published by the London *Times* closely resembles that of the New York *Times* and is sometimes mistaken for it. Some libraries have the two sets near each other, and the unwary reader may be confused by the volumes.

The Industrial Arts Index lists the articles appearing in a wide range of technical, trade, and business periodicals. It therefore contains some of the more specialized material in science and industry omitted by The Readers' Guide or the P.A.I.S. described above, and is particularly helpful in studying concrete problems of particular trades. It is issued monthly, and cumulates quarterly and annually.

The Cumulative Book Index (New York, The H. W. Wilson Company), issued monthly and cumulatively, is a list of books published in the English language. It does not include government publications. Its 1935 volume, 1492 pages, is a world index for the year with the author, title, and subject in an alphabetical arrangement that makes for ease in locating treatises. The investigator will in most cases

find it unnecessary to refer to this volume because its material will generally be available in P.A.I.S., the Industrial Arts Index, and the other source books mentioned. But the student who is anxious to track down some difficult subject may have occasion to examine it to see whether its system of arrangement and its extensive character serve to bring to attention some material not noted elsewhere.

b. How to Use the Indexes

The indexes described are designed for the general reader and are made simple to use. A few points to be noted regarding them will make it easier for the beginner to locate material.

There is, first, the possibility that some of the references listed in an index may not be clear because of the method of abbreviation employed or the specialized terms used. In most cases, however, such matters are explained on key pages in the front of index volumes. These key pages may not be included in the temporary biweekly or monthly cumulations, but will be found in the quarterly or annual volumes.

An index may sometimes appear to contain few references on a subject when, in fact, there are a large number in the volume. The difficulty may be that the investigator is searching under a subject heading different from that under which the material is classified. If he has any difficulty on this score, he should make a list of the various possible subject headings under which such data might be located. Thus, if he should find nothing under "Piece rate systems" he might look under "Wages" or "Wage

methods" and find that perhaps all such material is listed there. Usually cross-references to such items aid the investigator in discovering the subject headings normal to library classification.

A suggestion which is likely to prove of aid in this connection is to remember that specialized topics are small parts of larger subjects. One may, for example, find no reference on the topic of accident prevention as applied in a certain industry. But if one examines the volumes dealing with the general subject of accident prevention, he may find pages or even chapters dealing with the particular topic.

The titles of most books and pamphlets are general and cover a wide variety of information not directly implied in such titles. Therefore, if material is especially scarce, it may be necessary to record many references which only remotely suggest data in the investigator's field but which, on further examination of the documents, may disclose worthwhile facts.

On the question of how many annual volumes of an index to use, experience suggests that it is advisable to look over the issues of at least the last five or six years, beginning, preferably, with the most recent year, and to work backwards. The more annual volumes used, the greater the assurance the investigator may have that he has not relied solely upon material which may have been published in any one short period and that he has not overlooked outstanding references of other years.

In copying references for the temporary purposes of this stage of the inquiry, the following items, at

least, should be noted: (1) author; (2) title, along with any significant comment on the contents, if mentioned by the index; (3) place, publisher, and date of publication; (4) number of pages. If the item is a book or a pamphlet, it is easy to record these facts. If the article is in a periodical of general circulation, then it is necessary to list the name of the periodical, its date, and the inclusive paging of the article, but not the publisher or place of publication. Librarians prefer that the volume number of a periodical be included, to aid them in locating it on the shelves. For older issues and for most foreign or technical magazines this is essential, but for current standard American periodicals of general circulation this may not be necessary. Sometimes a pamphlet bound in a diverse collection must be distinguished by special serial numbers and other designations.

The reason for insisting upon the number of pages in a publication, or upon the first and last pages of an article in a periodical, is the practical one of knowing how long a treatise is and therefore how extensively it may cover the given subject. If obtaining the material would entail extra difficulty or expense, the number of pages helps to determine whether it is worth the trouble. If only the beginning page of an article were noted, one would not know whether it is a one-page or a twenty-page discussion.

The list so prepared is for the writer's own use; therefore it need not be typed. But it should be recorded initially in neat and legible form, and with ample marginal space for checks or comments, so that it may be used continuously. The list is a work-

ing guide and is not to be confused with the final bibliography to be recommended by the investigator in submitting his report. The latter type of list should be a careful selection of material actually used and found helpful, and should conform to certain standards of citation discussed in a later section.

c. Prepared Bibliographies

Often it may be unnecessary to do extensive research in compiling a bibliography, for one may be already available, as the work of librarians, research organizations, and others. There will usually be reference to such bibliographies in the P.A.I.S. and other indexes mentioned above. The United States Library of Congress, Washington, D.C., has compiled bibliographies on a large number of subjects. These are usually listed on the cards of library catalogs, under United States, *Library of Congress*, and under the particular subjects. Any one library may not have a desired bibliography in this series, but in many cases it will be obtained for the reader if the request is made. These bibliographies are ordinarily typewritten, vary from three or four pages in length to as many as twenty or more, and are purchaseable at a nominal price.

d. Specialized Indexes

In addition to source books already described, many other guides to research are available. A list of these is to be found in a standard book written on this particular subject and brought up to date from time to time. This is Miss Isadore G. Mudge's *Guide to Reference Books* (Chicago, American Library Associa-

tion, 1936), 504 pp., which contains a comprehensive list of indexes to periodicals, philosophy, political science and economics, literature, biography, geography, history, government documents, and other fields. It also contains a list of the standard dictionaries, encyclopaedias and bibliographies. This book can be a source of considerable aid to the investigator who requires specialized information.

The type of material listed in Miss Mudge's reference guide may be illustrated by four volumes, listed below, which do not appear in it because they were issued subsequently. These reference works show the amount of aid that students in specialized fields may obtain by preliminary analysis of the guide books and reference aids prepared for them by scholars and research agencies.

AMOS TUCK SCHOOL OF ADMINISTRATION AND FINANCE, DARTMOUTH COLLEGE, *Reading List on Business Administration* (Hanover, N. H., Published by the School, 1936), 62 pp.

A carefully selected and classified list of major books and periodicals in the field of business, with descriptive notes concerning each item included.

LAVERNE BURCHFIELD, *Student's Guide to Materials in Political Science* (New York, Henry Holt & Company. 1935), 426 pp.

A well classified list prepared under the direction of a subcommittee on research of the American Political Science Association, in order to introduce the student to the more important source materials, finding devices, bibliographies, and general reference works which may be of major assistance to him in research.

EDITH M. COULTER and MELANIE GERSTENFELD, *Historical Bibliographies* (Berkeley, University of California Press, 1935), 206 pp.

A scholarly, systematic, and annotated guide to the bibliographies published in the field of history throughout the world.

CARTER ALEXANDER, *How to Locate Educational Information and Data* (New York, Teachers College, Columbia University, 1935), 272 pp.

A text and reference book which gives excellent advice to the student of education in the use of library material, notation of facts and references, and other elements of library research.

e. Encyclopaedias

Encyclopaedias require special mention because, strangely, they are often overlooked. Two of the many sets available are cited below because of their general value.

The Encyclopaedia Britannica, whose latest (14th) edition was published in 24 volumes, is the most comprehensive of the general encyclopaedias. It will be found of great assistance in obtaining quickly certain types of information, such as the historical backgrounds of various movements or condensed explanations of scientific processes. The alphabetical sequence of its topics presents some problems of classification and completeness which make it desirable to consult its index volume under several headings until the desired information is found.

The Encyclopaedia of the Social Sciences is the most helpful starting point for many studies. Its final volume, No. 15, containing the index, appeared in June, 1935. The *Encyclopaedia* contains short and

scholarly discussions of a great many subjects, supplemented by selected bibliographies on each topic discussed.

5. Using the Library Card Catalog

The card catalog of a library is among the last of the means suggested for preparing a bibliography because of the obvious limitations of many local libraries. As already indicated, such a catalog lists only those books that happen to be in a particular collection and not necessarily the best material in the field. On the other hand, the material may be unmanageable because it is too extensive. If one looks through the card catalog of a huge institution like the New York Public Library, he is likely to be embarrassed by the number of references, because it is an index of material published during a period of several centuries. The books of recent years are not segregated. Moreover, a common limitation of all such catalogs is that they list only books and pamphlets and not articles in magazines.

However, the use of the card catalog in a smaller library makes possible an immediate selection of the books at hand. One who has trouble in locating his topic in a card catalog should make sure that he has searched for it under the various subject headings under which it may be classified. The suggestions made on this point previously in discussing the use of reference guides apply also to card catalogs of libraries.

For purposes of training, the investigator should prepare his bibliography with a minimum reliance on the library staff. The librarian will usually suggest

possibilities which the trained investigator should know for himself. He should not have to ask the librarian more than where to find particular books already on his list, and even this may not be necessary where there is a clear guide to the location of books on the shelves or in the stacks. This will conserve the time and cooperation of the librarian for the genuine problems, such as those of obtaining the desired material locally.

The investigator should not be discouraged by the fact that some of the books cited in indexes are not available in the libraries consulted. Aside from the fact that the desired information may be contained in other books at hand, there are means available of procuring the volumes specifically desired.

The local library may in some cases purchase the book for the investigator's use, especially if it is likely to be of interest to others. Libraries in general are obliging in this respect. If a particular book is indispensable and the library consulted cannot buy it, it can probably borrow the book through an exchange service which is an admirable cooperative feature of the country's library system.

Various other special services are also offered in some of the larger libraries. For example, the New York Public Library and many others will photostat pages from any book in the building, at low cost.

The rapidly developing use of microphotography is particularly interesting in permitting reproductions of articles in magazines, or even of books, at very small

cost, and at a much less expense than photostat or typewritten copies. This service is especially useful when the original material is so valuable that it cannot be borrowed. As an example of the cost, the Biblio-film service of the United States Department of Agriculture, in its statement of June 17, 1935, stated that it was prepared to furnish film reproductions at the following rates: "Ten cents for each article not exceeding ten pages in length, and five cents for each additional ten pages or fraction thereof of the same article." The recent commercial production of a reading machine which seems to eliminate most of the difficulties that have hampered the use of film strips indicates that soon these will be in more general use.

6. Sampling the Bibliography

As soon as a substantial bibliography has been prepared, priority in reading the various items should be decided. The principal references selected should at once be obtained for preliminary examination. The first inspection does not need to be more than cursory, and may be merely for the purpose of obtaining an idea of the nature of the literature available.

This first contact will prove of value because it will lead to the discarding of some documents or reports on which hope had been placed, and to the discovery of other books or pamphlets worth especially careful study. Another important reason for seeking the principal references at the start is to ascertain whether or not the local library can supply them. Some of the volumes may be out in circulation or mislaid, while others may not be available at all.

When the investigator has acquired this general picture of the material, he is ready to direct his attention to the most valuable references. Leads to new data will thus be opened up. After spending time familiarizing himself with the best printed information to be found on his subject, he is in a better position to decide what further information he needs and what methods he must use to obtain it.

7. Reanalyzing the Scope of the Investigation

One great advantage which this preliminary survey of material should have contributed at this stage is a broadened view of the field of study. Various new lines of inquiry will have suggested themselves. The student who initially may have had a one-sided view of his subject but who is open-minded will be able to correct and expand his approach to the problem.

The range of material which the bibliographical survey reveals should, however, also call the investigator's attention to the need for focusing his study. This is the time to revise the tentative outline, or otherwise to refine one's ideas of the problem, thus avoiding the serious danger that the investigator will waste much of his own time, as well as that of others, in pursuing aspects of his study which are somewhat off on a tangent.

That this misdirection of energy is a frequent occurrence is illustrated by a letter received from a director of research with long experience, to whom questions and requests for information are often addressed. In his comments he offers the following advice to those engaged in research:

It is essential that a number of hypotheses be formulated as early as possible in an investigation. My own experience is that a great deal of time is spent in collecting information without any carefully thought out plan. One result is that people solicited for facts are burdened with the preparation of data which are not actually used, because not pertinent; another frequent occurrence is that certain necessary data are entirely overlooked, since the investigator did not have in mind the hypothesis which would have forced their collection. As a consequence, it very often happens that further questionnaires are sent out as the investigator becomes better acquainted with the problem and begins to appreciate the issues involved. Closer study at the outset would have eliminated much of this.

The outline must be accompanied, therefore, by a tentative plan of study. The making of such a plan is discussed again at the end of the next chapter, after certain other procedures involved in a preliminary investigation are described.

CHAPTER II

GATHERING FIRST-HAND INFORMATION

There are various types of prepared information which are not available in printed form but which may be of great importance to an investigator. The material may be in mimeographed or typewritten statements, available for the asking. Such data may not be intended for general circulation or may merely not have found its way into print because no effort to obtain it for this purpose had been made. The investigator will therefore want to get in touch with authorities or agencies able to supply counsel or other aid of this kind.

The suggestions here made are grouped in two parts. The first deals with certain additional sources of prepared data, obtainable from official or semi-official agencies and services; the second indicates the means of securing more direct first-hand information.

1. General Sources of Information

If books and periodicals are inadequate in the information they supply, certain public or semi-public agencies may have unpublished memoranda which provide the needed data. Expert knowledge is, for example, possessed by government bureaus, technical and trade associations, editors of special periodicals, research organizations, professional societies, con-

sultants, and other such authorities. All these, if tactfully approached, may prove sources of valuable aid, and indeed, under proper conditions, may be willing to go to some length to be of assistance.

Several stipulations must be made here. One is that no one should be consulted until the bibliographical work previously recommended has been completed. Second, appeal for aid should first be made to agencies having the specific function of supplying information, rather than to individuals whose responsibilities lie in other directions or on whom such requests are an imposition.

In communicating with certain authorities for advice or assistance, one must also bear in mind that the supplying of information and counsel may be the means by which they are earning their living. One should, therefore, be sparing in his questions, and leave no possibility of misunderstanding that service on a fee basis is intended unless that is the case. One should not put an informant to any avoidable expense and should offer to meet the incidental costs.

a. Government Bureaus

The scope of the research and statistical services of government agencies and the large amount of vital material which they issue are appreciated by comparatively few people. In particular, the departments of the Federal government and its numerous boards and commissions issue authoritative publications almost indispensable in many fields of research. Likewise a vast array of material is published for

regional areas by various states and by certain municipalities.

An additional value of familiarity with government research and activities, aside from the content of government publications, is that one may obtain leads concerning the names of specialists and officials whose counsel may be desired. Many of these government agencies are glad to answer special inquiries in their fields and to be of service to the interested public. It is therefore useful to know which departments of the national or state governments are engaged in studies of the type desired. In most cases this will not be difficult, for their publications are likely to be listed in the indexes already discussed and so will be called to the investigator's attention. Since this will not be true in all cases, it is well for the investigator to know of the special indexes listing the publications of the various government bureaus.

With regard to publications of the Federal government, the Brookings Institution has recently issued a volume[1] which is so informative in its organization and content that even the trained research worker—not to say the newcomer in the field—would do well to peruse its pages for stimulation and suggestions. In the foreword, Mr. Alton P. Tisdel, Superintendent of Documents at the Government Printing Office, points out:

> Public documents are no longer mere dry statistical records. Their province is the entire field of human knowledge and they touch human living on every hand;

[1] LAURENCE F. SCHMECKEBIER, *Government Publications and Their Use* (Washington, The Brookings Institution, 1936) 446 pp.

their importance to the general public and to the business interests of the country can not be fully estimated, and the libraries are active agencies in educating the public concerning not only the broad scope of such documents, but their vast treasures of scientific, industrial, and economic information.

The reader is certain to learn much from this volume about the Government's activities and procedures with regard to publication.

Perhaps the only certain way of ascertaining what the Federal government may be issuing on a specific subject is to consult the *United States Public Documents Monthly Catalog*, a monthly compilation by the United States Government Printing Office, which lists all Federal government publications as they appear. Thus the investigator who has occasion for an exhaustive study of such documents can refer to this catalog to see if, in the general indexes previously mentioned, he has missed any Federal material on his subject.

For an index of all the material issued by the states, the United States Library of Congress assembles a *Monthly Check List of State Publications* which lists publications of the various states.

Whether or not the investigator has occasion to consult these two indexes, he should be aware of certain outstanding government reference books which provide the official statistics on a great many subjects. Some of these will be described, merely as an indication of the scope of such official source books.

The United States Census, published by the United States Department of Commerce, contains a wealth of economic and social data. In particular, the complete volumes of the Decennial Census and the special volumes appearing from time to time should be given attention. The department also publishes an annual *Statistical Abstract of the United States*, a one-volume work which summarizes within limited space the widest range and the largest amount of information of interest to the economist and the statistician. It is excellent as a ready-reference volume for many types of research. For up-to-date data the department issues the *Survey of Current Business*, a periodical which is the best source on a wide variety of economic statistics.

The specialized nature of material obtainable may be illustrated by the United States Department of Commerce's annual volume on *Market Research Agencies*, a complete recurrent guide to publications and activities relating to domestic marketing. It lists the surveys and studies being carried on in this field by the various departments of the Federal government, the state and municipal governments, colleges, universities, foundations, book publishers, commercial organizations, advertising agencies, periodicals, newspapers, and individual business concerns.

It is hoped that enough has been stated regarding official sources of information to make the investigator realize that one permanent advantage gained from making a study is that of becoming familiar with important government research agencies. Another advantage which he will discover is that by consulting

such official sources he obtains facts which are authoritative, while if he consults sources not known to be authentic, his data may be second hand and of doubtful accuracy.

b. Professional and Trade Associations

On many questions there may be one or more professional or technical associations which can render expert assistance. Their material may be of first importance. For example, in investigating a question concerning proper lighting or ventilation for office or factory, such societies as those of the illuminating engineers or of the ventilating engineers will be particularly well informed. It is desirable, therefore, to write to their officers for material otherwise inaccessible or, when justified, to ask for other types of aid.

A list of technical societies and trade associations appears at the beginning of the annual volumes of the Industrial Arts Index, described in the previous chapter. The secretary may be able to suggest published material not otherwise known, or put at one's disposal mimeographed or typewritten statements originally prepared for the use of the association's own members or staff.

The person who wishes special information on the conditions in a trade may find it best to consult the index to such associations in the United States Department of Commerce's book on *Commercial and Industrial Organizations of the United States.* It is issued from time to time by the Government Printing Office, at Washington, D.C. It lists the commercial associations in the country and classifies them by industry

and locality. If, for instance, one desires to secure specialized information on the furniture industry, he may look under "Furniture" in this index to see what associations exist in the country as a whole. If one wishes to get in touch with an association in Grand Rapids, Mich., he may look under "Grand Rapids." If there should be uncertainty about the existence of a local furniture association, but the name of any local commercial or civic association in the city is desired, one may find the name of an existing organization of this type in the volume. With the exercise of ingenuity, it is nearly always possible to get leads to associations or individuals possessing specialized information.

c. Professional and Trade Periodicals

The columns of specialized publications issued by technical and trade associations and by private publishing concerns are often primary sources of information concerning conditions in their fields. The editors usually possess specialized knowledge and are in a position to offer helpful suggestions concerning material within the scope of their interest.

A complete list of all newspapers, magazines, and other periodicals published in the United States is found in the *Directory of Newspapers and Periodicals*, published annually by N. W. Ayer & Son, Inc., Philadelphia. It classifies publications by locality and by the field covered, supplying the name of the editor, the publisher, and other pertinent facts, such as circulation and political allegiance. This interesting

index will provide suggestions of publications whose existence might otherwise never be suspected.

2. Letters

The investigator who decides to write letters requesting information should bear in mind the fact that he is putting busy people to effort and expense in assisting him. He should therefore not take this step casually, but should weigh the matter carefully and determine just what he wants and what his chances are of obtaining it. If he concludes that letter writing is essential, he should plan tactful ways of entering upon such correspondence.

A letter showing poor judgment in tone or in the selection of questions will create an unfavorable impression, not only of the writer but of the institution he represents. A few of the particulars in which letters sometimes give occasion for irritation include the following:

The letter contains so many questions or requires so many data that the request is an imposition.

The questions are vague and therefore not clearly understood by the person addressed.

The information called for is of a type generally available in standard references, or is easily obtainable from associations or official agencies making a practice of supplying such data.

The information desired may be of too confidential a nature.

One editor was so much exercised about the unthinking types of letters for information received

from college students that he wrote a vigorous article on the subject, in which he stated the following:

> So far as I know, none of the older and more distinguished universities has yet fallen so low, but there is no one in even the humblest of public positions who does not almost weekly receive fantastic requests which betray not only the most debased possible conception of the meaning of research but a plain cheek which it is difficult to comprehend.[1]

A letter requesting facts should therefore be drawn up in such a way as to cause the least hesitancy or difficulty in answering. It should establish confidence. It should attempt to economize on the amount of time required for reply. It should arouse interest in the problem under investigation. With these and other important points in mind, the letter should contain some or all of the following elements:

. A clear indication of the writer's connections or position (wherever possible on a printed letterhead); why he is gathering such information, and what he will do with it.

Suggestion, where possible, of the significance and value of the type of study and the problem of joint interest it raises, so that the person answering it will get some stimulation from thinking about it.

A courteous statement indicating awareness of the fact that some of the information asked may not be available, or that the correspondent may prefer not to supply it.

Assurance that private material which is supplied will be kept in strict confidence. The point need not be raised, however, unless the information is of a character which would justify this precaution on the part of the correspondent.

[1] Joseph Wood Krutch, "Scholarship by Proxy," *The Nation*, October 17, 1936, p. 451.

Evidence of desire to conserve the latter's time, as for example, a request for any pamphlet, reprint, or other published material which may be available concerning the matters under investigation.

Inclusion of the minimum number of questions and, preferably, the least difficult ones, so as to encourage a reply. With contact thus established, reliance may be placed upon a later follow-up soliciting information concerning more involved points.

3. Questionnaires

The dividing line between a questionnaire and a letter is not in the content but in the form, yet the reaction obtained is usually quite different. A questionnaire may be more elaborate, but its distinguishing mark is the arrangement of the questions in an interrogation sheet which gives evidence of being sent to a large number of people. Questionnaires which involve personal interviews are in an intermediate category, and certain additional suggestions regarding them are made in the following section.

Even if a personal letter accompanies the questionnaire—as should usually be the case—the impression that it is being broadcast almost always tends to reduce interest. If, therefore, the object is merely to obtain similar information from twenty to thirty persons, the appeal will be stronger if the questions are skillfully incorporated in a letter and the personal relationship retained. However, when specific answers to an identical list of questions are desired from a large number of people, it may be necessary

to print or mimeograph questionnaire forms which the correspondents are expected to answer.

A strong antagonism toward questionnaires has been created because too many are being distributed and also because some are sponsored by investigators who use this method too indiscriminately. Questionnaires justifiably circulated by the government, trade associations, research bureaus, and other important agencies entail so much routine that the extra burden of answering them for private investigators is resented.

A special source of irritation caused by questionnaires is the ineptitude with which many are prepared. The questions may be vague or may require people to commit themselves on issues which they would rather not answer in black and white. In those cases the questionnaires are likely to be unanswered.

If a questionnaire must be used, it should be constructed with exceptional care. It requires the attempt to visualize the person receiving it and his reaction to every line in it. The person unfamiliar with its construction and use should peruse the literature on the subject and get the reactions of various people to a tentative draft. Successful use of a questionnaire in an investigation depends also on various allied problems, such as the character of the people circulated, the letter accompanying it, the nature of the follow-up, and the methods of tabulation. If possible, a test should first be made by sending the questionnaire, in typewritten or mimeographed form, to a small number of those to be solicited, to see how

they answer it. This provides opportunity to improve it before it is broadcast.

An authority who is familiar with the questionnaire method suggests the following ten principles with regard to the preparation of questionnaires:

1. Make a careful analysis of the subject in order to determine what information is essential.

2. Visualize as clearly as possible the person from whom the information is desired.

3. Make certain that only such information is requested as can be furnished by the persons to whom the questionnaire is sent.

4. Ask no questions which there is any reason to believe the recipient will object to answering.

5. Phrase all questions so that there can be no misunderstanding as to what information is desired.

6. Make it as easy as possible for the recipient to furnish the desired information.

7. Arrange the questions in logical sequence.

8. Avoid long or involved questions.

9. Phrase the questions impartially so that no indication will be given of the answer that is expected.

10. Make the questionnaire as brief as is consistent with a thorough handling of the subject.[1]

[1] J. EIGELBERNER, *The Investigation of Business Problems* (New York, McGraw-Hill Book Company, Inc., 1926), pp. 153–154. Chapter X is a compact and excellent discussion of many points which are of practical importance in the construction and use of questionnaires. For other helpful hints see Ward G. Reeder, *How to Write a Thesis* (Bloomington, Ill., Public School Publishing Company, 1925), pp. 35–38.

4. Personal Conferences

Even when a subject seems to be fully covered by available material, one should plan for at least a few conferences with people who have special knowledge of the field. Such contacts with those having practical or first-hand experience may counterbalance bookish or purely academic knowledge and add important sidelights concerning actual conditions. Some readers look for evidences that the writer has taken the pains to submit his ideas to those who have practical knowledge.

Furthermore, in the procedure of obtaining information, an interview with the individual whose aid is sought is often the most satisfactory method. In turn, the person interviewed sometimes finds this the least objectionable form of inquiry because he can learn more exactly what is wanted, can judge for himself how far he can take his visitor into his confidence, and can answer without the effort required to dictate a letter or put his answer into precise English.

Some authorities enjoy conferring with a visitor who shows intelligence in his questions, as it makes them think about phases of their work which they had perhaps tended to overlook, or gives them an opportunity to tell of activities in which they are particularly interested. Busy executives, whether in civic or business organizations, are equally subject to this appeal if properly approached. Indeed, they may feel that they have profited by the intellectual stimulation involved in considering the problem under inquiry. It is not strange, therefore, that professional

men and officials who resent giving twenty minutes to the filling out of a questionnaire may cheerfully spend several hours talking with an investigator.

a. The Person to Address

In writing to an institution or business concern or in arranging a conference with an official, the success achieved in securing information depends in large part upon the person with whom the contact is established. Sometimes a responsible official may be of much less aid than one in a lower position, while in other cases the latter's limited authority and viewpoint would be too restricted to be of real aid. In general, the following considerations should be borne in mind:

1. If the study is one involving broad policy, or if the information wanted would involve extensive aid from an institution or concern, it may be desirable to seek the cooperation of a major executive. In some cases it may be the general manager, an operating vice president, or even the president. Although such an official may not himself give the matter much time, he will know the individual who can handle it best, and his approval of the inquiry will lend it importance. Normally, however, in specialized contacts, one should address the head of a department. In a business concern it might be the sales manager, the production manager, or the personnel director, so that an inquiry will not appear to disregard the line of authority.

2. A person in a subordinate position is often the one most familiar with the routine involved in conducting an activity. If possible, therefore, one should try to see not only the chief official responsible, but also the subordinate who has the most to do with its day-to-day operation.

3. The account given by one individual having a specialized interest in a subject may not present a true picture of the way in which a plan is actually working or a matter is regarded in the institution or concern as a whole. Thus in studying some new plan it may be found that the man who has introduced it is more enthusiastic about it than those who operate under it and who may prefer the old system. Other individuals who may be opposed to the plan may disclose aspects which a one-sided account from its friends may not reveal. In general, therefore, a better view of a situation will be obtained from interviewing people with varying responsibilities and interests.

b. The Interview

One of the diplomatic problems in interviewing people is how to focus the conversation. Since one should not be aggressive in directing the attention of the person interviewed to the particular points under consideration, tactful ways of keeping the main questions before him must be found. The difficulty involved will be less serious if the interviewer has thought out clearly the principal points he wishes to raise and has organized them in a logical manner. Such preparation is essential if a conference is to secure the maximum results in the minimum time.

A method that has usually met with success is for the interviewer to take with him a card or sheet of paper on which are typed the most important questions to which answers are desired. If difficulty is experienced early in the conference, this list might be suggested as a basis of discussion. It will be found that in most instances such a specific set of questions will have a compelling influence in keeping the inform-

ant from going too far astray from the objectives of the conference. Likewise, it need hardly be said that the interviewer himself must be brief and explicit if he is to retain the good will and interest of those whom he consults.

A difficulty encountered, especially when an interview is a long one or when several interviews have been held in succession, is to retain accurately the points brought out, or to remember which of the different individuals is responsible for them. This makes it most desirable to take notes. Writing in the presence of the informant has the danger, however, of restricting frankness. To avoid this, it is wise to ask his permission, assuring him that the notes are merely memos of the facts of the conversation, that they will be seen by no one else and will be kept entirely for personal use, and that what is actually put in manuscript form will not disclose the identity of the informant or any other confidential matter. Even with permission granted, judgment should be exercised in not recording remarks that are obviously private.

Except for the disadvantages it may have in impairing the frankness of the discussion, note taking lends added weight to a conference. If the informant observes that the questioner has stopped taking notes, this fact itself suggests that the discussion is straying afield. It also aids the interviewer in keeping the conversation on vital matters.

The attempt to take notes is sometimes unwise because of the objection of the person interviewed or

because it might become so conspicuous a part of one's contacts with people as to arouse derision or suspicion. In other instances the limited opportunity for consultations may not permit more than incidental note taking. Under such conditions, the investigator should make his notes at the close of an interview, or at least on the same day. The time element is important because only by recording ideas, facts, and impressions at the earliest occasion can all the important points be retained. Details which may have slipped one's memory are best checked while the recollection of the interview is still fresh, and this comes most appropriately soon after the interview.

If several conferences with the same individual or organization are planned, it is wise to digest all the information resulting from one visit before appearing for the next interview. This means that all printed material received should be read carefully, the notes and data should be given adequate thought, and the general problem reconsidered in the light of the information obtained. This foresight will eliminate the need of asking questions already answered in the material at hand. Points which would be difficult to check after a lapse of time can be ironed out while facing the man familiar with the situation. The common basis of fact established in conferences will free the discussion for intelligent consideration of its more important aspects.

5. Field Investigation and Technical Analysis

Most of the suggestions considered so far are only first steps in certain types of investigation. Sig-

nificant research will not result without the use of more intensive analyses and highly developed techniques appropriate to given problems. At this point no simple or condensed description can be more than superficial. The range of these technical methods and the possibilities of their application would require a much more detailed discussion than is within the scope of a guide book of the common elementary procedures. What is said here, therefore, is only incidental in nature.

The attempt has occasionally been made to classify prevailing methods broadly into two main types of research, one embracing the statistical and scientific procedures, the other depending chiefly upon observation and participation and thus leaving the primary emphasis upon personal interpretation. This classification has less use in modern research. The two groups are continuously being narrowed because many phenomena, investigated in the past chiefly through observational case studies, are now being subjected at certain points to mathematical and other analytical methods.

Statistics is probably the most general tool in social investigation. Statistical compilation, even in rudimentary numerical form, reduces the force of isolated or striking examples which may not really be typical or general. Such enumeration is thus corrective of erroneous beliefs and may call attention to, or challenge, prevailing assumptions. In other cases rearrangements or condensations of figures bring out what is obscured by the extent and volume of the data.

Through its provision of dependable principles of sampling, the science of statistics permits social and business studies to be made more economically than might otherwise be possible. One may study a hundred instances instead of a thousand and yet rely on the results as being true of the whole range of cases. Even pictorial or graphic statistics may have value in actually enlarging our knowledge, as well as making data more usable. Geographical plotting may call attention to the fact that certain phenomena are confined to limited areas or particular environments. Chronological plotting may indicate that certain types of events were confined to special periods or occurred in cyclical movements.

The more refined techniques of statistics remove the cloud in which many facts are otherwise obscured. In statistical series involving a confusion of seasonal or cyclical swings with long-time trends, newly developed analytical methods usually make it possible to view the different movements separately. In measuring the relationships of apparently independent phenomena, the use of correlation analysis may reveal associations or sequences of cause and effect.

Yet there are other types of studies in which the statistical method, or any other scientific method, has limited application. In a study of actual political procedures during a legislative session or the actual workings of employee representation plans or union agreements, the *observational method* may have to be the mainstay. One may have to go to many meetings, attend many hearings, witness many activities,

and talk with many people in order to have a foundation of fact as a basis of judgment.

A higher gradation of observation is *participation*. One may enter into an activity and thus learn through doing. This should afford a realistic knowledge, often intangible in nature, which is more genuine than mere observation. But there is a danger here. One who participates in an activity may be so much affected by its practical aspects as to lose his sense of detachment. A partisan attitude will result, but it may be avoided if the activity is regarded as a mere exercise in learning. In such participation in a movement or activity one must be conscious of group pressures and sentiments and balance his outlook by engaging in opposing types of activity. Above all it must be remembered that the purpose is to learn rather than to do. Such an attitude will distinguish the activity from the kind of practical research which aims to achieve a preconceived result, rather than to find out what is wise, and thus proves an enemy rather than an aid to truth.

The method of *social experiment* represents the synthesis of observation and participation and an advance to the attempt at control of the phenomenon to be studied. For obvious reasons the experimental method is more limited and more difficult to apply in human affairs than in biological and physical sciences. But it is coming more and more into use as investigators discover ingenious methods of testing their conclusions.

A review of the methods appropriate to various types of sociological research is contained in an excellent volume, written by thirty-four authorities, on *The Fields and Methods of Sociology*, edited by L. L. Bernard (New York, Farrar & Rinehart, Inc., 1934) 529 pp. It discusses a wide range of studies, sources, and types of techniques and is full of suggestions to a research worker in this field. One of the best and most recent compilations of material on this subject is *Methodology of Social Science Research: A Bibliography*, by Dorothy C. Culver (Berkeley, University of California Press, 1936), 159 pp. It deals with the collection of data, surveys, case studies, tests and measurements, statistical techniques, and similar problems. Other references to such detailed manuals have been made in earlier pages. If the methods thus presented, or adaptations of them are not applicable, original procedures will have to be developed to suit the individual case.

Whatever the plan followed, anyone lacking intimate contact with the practical aspects of his problem should attempt to gain experience in the day-to-day operation of the activity studied. The investigator who wishes to be sure of his grasp of a social or economic situation should spend as much time in field work as he can. He will thus acquire an understanding of the human factors and intangible considerations which determine practical policies and methods.

6. Plan of Study and Schedule of Writing

The schedule involved in obtaining the information needed must be planned. In no other way can the study be made with a minimum loss of effort and

within a limited period. The writer must determine which data will be most difficult to get and will require the most time. If, for example, correspondence with people in foreign countries is involved, this should be given precedence. Likewise, an investigation requiring conferences with high officials would do well to take into account the possibility that during the summer and at the height of the winter season they may be on their vacations or on extended trips, or that they may be inaccessible for other reasons.

As one proceeds with his study, so many new aspects come into view that there is danger of prolonging the investigation beyond the time available. Aside from this, it is usually found that the inexperienced writer tends to underestimate the difficulty of organizing and preparing the written manuscript, so that the end of the period finds him feverishly rushed to complete his report. The result of such delay and of failure to plan for the details of preparing the manuscript is likely to be slipshod presentation. It is usually better to spend less time in obtaining additional information and more time in analyzing, organizing, and revising what one already has.

In short, a research undertaking must be scheduled in such a way that ample time will be allowed for those essential parts of the work required by later stages. When a fixed date for submitting a report must be met, changes may be permissible in the first part of the schedule, but there should be no postponement of the date when the investigator starts putting his results into written form. A fair amount of data well presented will be more useful than batches of undigested information hastily thrown together.

CHAPTER III

RECORDING AND ORGANIZING INFORMATION

Unless a proper method of recording information is adopted at the start, difficulty will be experienced later in using the data. The investigator may become lost in a maze of unassorted information. Certain principles of handling material, which tend to reduce nervous strain and lost motion and to make writing more pleasurable, are therefore worth considering.

A book or manuscript, no matter what its size, is normally founded on a condensation of a vast amount of material, perhaps ten or twenty times its bulk. The writer who has followed a subject through at least its main phases realizes the need of a system of handling his material. This system, though perhaps laborious in the process, will be effective and time saving when writing is begun. As an illustration, the Webbs, who have written notable books in the field of British trade unionism, consumers' cooperatives, and local government, have regarded their experience in handling information of such value that they have published a special book on the subject for the guidance of those who work in similar fields.[1] Some suggestions based on the experience of many students are presented below.

[1] SIDNEY and BEATRICE WEBB, *Methods of Social Study* (London, Longmans, Green & Company, 1932), 263 pp.

1. Analysis and Writing "En Route"

Reading a large amount of material does not make facts or ideas available when writing is to be done. The investigator must decide at every step, therefore, whether what is read is interesting only for general background and will not need to be specifically recalled, or whether a note regarding it would prove valuable when the section dealing with the topic is being written. If the latter is the case, it should either be summarized or copied then and there, or recorded as a reference.

When an item not directly copied is summarized or rewritten, it should not be worded carelessly, but in good, clear English such as would be suitable for insertion in the report. Similarly, thoughts and ideas noted for later inclusion should, whenever possible, be prepared with similar intent. The writer will be gratified later to find that first drafts of whole pages of the manuscript can be put together in this way, largely by combining sentences or paragraphs previously written. He will find too, that many such paragraphs retain the flavor of the material or experience on which they are based, and are better than could have been written at a subsequent time from vague or rough notes.

The source of first-hand information is so important that it is essential to put down at the end of the item, or uniformly at some convenient point on each sheet, the exact name of the person who supplied the facts, with his initials, title, address, and the date he was interviewed. This will enable the investigator

to communicate with the right individuals in checking doubtful points. When information is taken from printed sources it should be copied with meticulous accuracy. It should include the full name of the author, the exact title of the book, the place published, the publisher, the date of publication, the page number of the citation, and other essential facts, in the form suggested in a later section on references and citations.

In most cases sheets 5 by 8 inches in size, with the writing parallel to the 8-inch edge, will be found best for recording data. Certain authorities urge cards of that size, but cards are normally less useful. Their added weight and expense are mere waste, and their thickness makes it impossible to type the item with carbons. To have two or three identical copies of an item is most helpful, since if one does not know just where to classify it or wants to bring it back to mind under several headings, there are duplicates available for insertion in the proper places.

2. Classification of Material "En Route"

One of the most important suggestions from a mechanical standpoint is that a sheet of paper should contain notes on only one point. Every bit of information that is of a different character should be on a separate sheet, even though the item may be only a single short sentence. Different citations on aspects of the same point should also be on separate sheets. This method of noting items seems tedious but will be found extremely useful in classifying material, since one can put together all items which seem to be on the same general topic.

When sheets 5 by 8 inches in size are used, they may be kept together in envelopes cut into pockets and labeled with titles of general content. If a large number of sheets have been accumulated and the investigation will take some time, it will be preferable to use standard file containers of those dimensions. Boxes designed for that purpose are carried by most stationers. Stiff index cards having blank projecting tabs can be used to display titles indicating the various subdivisions.

Information thus subdivided by the index cards constitutes a visible guide to the material collected. To save extra filing arrangements, occasional sheets of larger sizes may be folded and filed in the proper subdivisions in this same box, but where necessary, supplementary folders for the more bulky material may be separately maintained. The use of the visible tabs in the box index affords a flexible outline permitting continuous organization and reorganization of the sequence of topics investigated.

If this method is not used, the investigator should have folders indicating the main subdivisions of the subject, so that data may be classified properly when filed.

3. Perfecting the Outline

It was previously stated that ordinarily outlines used in the preliminary stages of the work would have to be revised several times in accordance with developments. After a substantial amount of work has been done, however, it is desirable to fix upon a definite organization of the material as constituting

a controlling plan for further investigation and writing. A careful review should then be made of the information obtained, and the revised outline examined with an eye to gaps in the material and to parts which need to be strengthened. The outline at this stage should correspond to the final organization of the manuscript. It should therefore indicate the chapter heads and titles, the sections with their subtitles, and other parts of the report.

At the cost of repetition it may be stated that unless the writer bases his work on a good outline, his manuscript will probably be illogical in order and contain similar material in different places. He may also waste much time in rewriting and rearranging material that could have been put in its proper place at the beginning.

4. Numbering the Subdivisions and Titles

While the kinds of titles to be used, and other matters concerning them, are discussed in a later section, certain details may be more conveniently considered here because they are of aid in drawing up the outline.

If three subdivisions are used in a chapter, roman numerals are employed for the titles of the main sections, arabic numerals for the subsections, and small letters for subdivisions within the subsections. If only two series of subdivisions within a chapter are used, as in the present manual, it may be preferable to start with arabic numerals for the main sections and to employ small letters for subsections. If it is necessary to have four subdivisions, the sequence

should be: roman numerals, capital letters, arabic numerals, and small letters.

The organization of subdivisions requires careful examination. It is theoretically possible to subdivide indefinitely within a chapter, but inadvisable, since a breakdown into four or more subsections tends to introduce confusion with regard to the relationship of main titles, subtitles and sub-subtitles.

To avoid such excessive subdivision, some titles may conveniently be used as side heads of paragraphs, with or without underscoring. Examples of this form of title, having no place in the table of contents but serving as an aid to the indication of subdivisions, are shown without side numbers on pages 67–68, 88–95, and elsewhere.

Hints as to how to make titles interesting are given in Chap. VI. Many writers believe that, if avoidable, a single subsection title, should preferably not be used. It can in some instances be converted to a main title; if this is impossible, there may be an opportunity to insert another title in material appearing above or below it, and thus, perhaps, to improve balance of structure.

CHAPTER IV

ANALYZING AND INTERPRETING THE DATA

In the progress of the research, the investigator soon acquires a mass of information of varying importance. The task of selecting that which is significant, of eliminating the rest, and of drawing balanced conclusions from the evidence presents the real challenge to the writer's ability. It shows whether he can reason logically and draw sound inferences.

It may well be emphasized that, for most purposes, the object of investigating a subject is not to get a mass of facts, but to arrive at justifiable conclusions. An imposing array of information may be of value as an aid to thinking and judgment but it does not assure sound reasoning. The writer who becomes so much absorbed in the routine of collecting material that he spends too little time in organizing and weighing it will produce superficial results.

Within the limits of the present manual it would be undesirable to attempt even a succinct statement of the essentials of logical thinking or the methods of scientific procedure. These are now given some attention both in formal courses in logic and in courses in the various social sciences, especially in studies of statistical method. Careful use of numerical data is an especially fruitful means of training in the

correction of superficial and unscientific reasoning. The person who has the serious intention of making his influence felt should assure himself, through self-analysis and training, that his mental functioning is logical and balanced. For illustrative purposes, but without the intention of providing short cuts, certain standards are brought to attention below.

Experience with reports and investigations suggests four injunctions to the research worker from the many types of counsel which might be given. These are (1) a critical attitude toward the quantity and quality of evidence accumulated; (2) logical reasoning from this evidence; (3) maintenance of perspective concerning the subject as a whole; and (4) the use of good judgment in fitting the recommendations to the given situation. These points will now be briefly discussed.

1. Weighing the Evidence

Inferences are to a large extent based on facts. Facts gathered by an individual are, in general, of two kinds: those personally observed or experienced, and those taken on authority. If the facts used are incorrect, the conclusions to which they lead are likely to be incorrect. Part of the skill resulting from experience in investigation lies in determining when evidence is fact, and in checking, improving or discarding data until only authentic material remains.

Evidence taken in good faith but which subsequently proves to be incorrect may be the result of three errors: an absence of discrimination in accepting

other people's data, an unconscious bias exercised in the selection of material, and a lack of skill in interpreting the significance of data.

The first error is seen most frequently when an investigator compiles evidence uncritically. He may take as his source a document published by a person or organization in order to influence public opinion, perhaps for a private purpose. Such a publication does not have to rely on misleading statements and misrepresentations to be unfair. All it need do is to present only those facts which are favorable to its cause and disregard salient evidence of a contradictory nature.

One way of detecting partisan treatment of information in a document is to consider the personal connections of its author or sponsor with the issues under consideration. For example, the secretary of a trade organization, or the paid agent of a political or partisan group, cannot afford to jeopardize his relationships with his clientele or supporters by publishing facts inimical to their interests. Although such material may be prefaced by protestations of impartiality, the chances are that everything released has been carefully scrutinized with a desired effect in view. It is wise, therefore, to regard such material with skepticism, and to check its conclusions where possible by independent investigation. If not, the conclusion should not be glibly cited as a fact but as a conclusion of the group involved.

A statement in a periodical or newspaper usually cannot be regarded as a completely reliable source.

There are such factors as the pressure under which news is gathered, the emphasis given to sensational material, and the limitations or prejudices of the individual who does the reporting. There may be biased control over editorial policies by the owners of the publication. Much depends upon whether the subject discussed is of a controversial nature. In citing an item in a publication, therefore, the possibility of biased treatment of the particular topic should be considered, and its facts, where necessary, checked against more authoritative sources.

To repeat, therefore, it is well for the investigator to bear in mind that:

1. The mere fact that a statement is in print provides no certainty of its reliability.

2. The fact that a statement is made by a well known expert, authority, committee, or association provides no certainty of its validity. The only absolute fact about such evidence may be that the expert, authority, committee, or association made the statement.

Incidentally, it is well to realize that the reader of the report may know the reliability of an authority more intimately than the writer, and may draw a different conclusion as to the importance of the citation. Unless, therefore, the investigator has been in a position to form an independent judgment, the authority mentioned should be referred to in an objective way, without unnecessary endorsement or overenthusiastic comment. The value of the fact will then rest on its own merit.

2. Reasoning from the Evidence

It is comparatively easy to be critical of other people's thinking, but very difficult to appraise fully the unconscious bias affecting one's own mental processes. A writer may become so eager to establish a point that his mind will tend to magnify favcrable evidence and underestimate or overlook contrary evidence. The investigator should attempt to become aware of this self-deception. It may aid him to clear his mind if he honestly asks himself, "Have I been so much interested in establishing certain points that I have been oversympathetic and uncritical when items appeared which helped to bolster one side, and neglectful of items that suggested contrary evidence?"

Skill in interpreting data is a matter of training, experience, and judgment. Information may, for example, seem important yet be lacking in some essential data needed to give it real significance. As an illustration, the statement is obtained that the average wages in an industry are $30 per week. But are these the wages of a specific month or two in the height of the season? Does the figure for earnings include the salaries of high executives? In any event, is the average wage deceptive because the wages paid to workers earning $40 and $50 a week obscure the number who are getting $15 a week? Moreover, the question also remains whether the particular facts relate to isolated or exceptional instances rather than to typical examples. Reliability of the average depends upon how representative it is of the actual facts.

In the very process of gathering data, therefore, it is desirable to be critical of its value and it would be well for the investigator from time to time to try to construct an argument demolishing the facts obtained in order to see if the data will "stand up" when subjected to criticism.

A conclusion is justified by an accumulation of pertinent facts permitting an induction or by a sequence of reasoning permitting a deduction. The investigator should go over each sentence which presents a conclusion to see if it is fully supported by the facts or the reasoning, or by both.

The principles of logic applied to scientific analysis and proof constitute an excellent background for research work. Many of these are matters of common sense which almost anyone can recognize. Most individuals, by adopting a spirit of criticism toward other people's reasoning, can usually see the fallacies involved. The great problem, however, is for people to apply such principles in their own reasoning and to become conscious of their own fallacies. An attitude of self-criticism will not only aid in improving the character of the reasoning but, by making the writer conscious of objections which may occur to the reader, will suggest qualifying comments that will induce increased confidence.

For example, shall a conclusion be made a generalization or merely a statement summarizing a limited number of cases? We are living in an era when generalizations are at once questioned. Skepticism everywhere is expressed regarding ready classifications, sweeping statements, and other forms of reason-

ing which disregard the diversity of forms and behavior. It is therefore wise to consider whether a tendency to generalize would not be better kept in check by limiting a statement to what is true of a number of given cases studied, and leaving it to the reader to decide whether the conclusion would be true more generally.

Is an analogy useful as a form of exposition or argument? Analogies are interesting and forceful as illustrations, but dangerous. The reader may view the cases cited as being so different in basic conditions that he may decide that the whole reasoning is inapplicable to the given situation.

The relationship of cause and effect is often asserted merely because one circumstance follows another in sequence of time. This is the fallacy of *post hoc propter hoc* frequently found in economic discussions, and is responsible for some of the most unscientific and untrustworthy reasoning. The assumption that because one fact follows another in point of time, the latter is the result of the former, or the former the chief cause of the latter, is always to be questioned.

3. Maintaining Perspective

Intensive research in a specialized field leads one to know so much about a single aspect of a subject that one tends to forget its relationship to the total situation of which it is a part. One tends to magnify or distort those aspects of a problem in which he has become absorbed. Sometimes this shows itself in becoming so much interested in details as to forget the

real purpose of the inquiry. One should, therefore, constantly keep in mind the main objectives, and struggle against the tendency to become too greatly affected by partial aspects of a larger problem.

One should avoid treating detailed data and minor considerations at the expense of major issues. Likewise, over-emphasis on "facts" often results in an encyclopaedic exposition of pertinent points, but loss in the attention required by the more important matters of policy and interpretation.

4. Exercising Judgment in the Recommendations

Occasionally an investigator discovers that his problem is beset by so many complexities that he believes he cannot make a recommendation. It is admitted that in certain types of economic research, as well as in other studies, the investigator can do a substantial service in merely presenting certain data and pointing out the difficulties of reaching a decision as to the main issues presented. But in most research work, especially in reports called for by business concerns, some indication as to how a situation may be improved is expected. There is no choice. There may be two sides to each question for the scholar, but to the executive in a practical activity there is, in a sense, only one conclusion. He must decide on a course of action, and hesitance or failure to do so is, in effect, equivalent to the making of a decision.

The research student working on a practical problem is somewhat in the same position. Often there are special values to be obtained in planning to make definite conclusions as to policies and attempting

constructive recommendations concerning methods. Such an effort forces realistic comparisons between present procedure and possible improvements. It gives one a better insight into what is practical, and thus sharpens his judgment.

In good writing of research reports it is a mark of skill to present the evidence in such a way that the recommendations to be made will suggest and commend themselves to the reader before they are definitely disclosed to him. He will thus feel pleasure in recognizing that his own judgment and the investigator's agree—a circumstance which will psychologically predispose him toward the adequacy of the investigator's reasoning. If the recommendation comes as a surprise to the reader, it is because the previous material has been improperly presented.

The writer should not overplay a recommendation. A conclusion is often the stronger when couched in conservative language without personal urging by the investigator. Forcible assertion of the need for following a certain course should be reserved for extreme cases. It should be justified to such a degree by the weight of the supporting material as to bring conviction to the reader.

The following questions may call attention to several other bases for testing the value of the recommendations made:

1. If a new plan or program is involved, have all the difficulties of installing it been given adequate weight?

2. Have "missing links" and other elements requiring further study been fairly and clearly indicated?

3. Are the recommendations couched in terms that will create least misunderstanding or opposition?

4. Has thought been given to the inertia and prejudice of those who are to appraise the value of the recommendations?

5. Have the probable objections been anticipated and discussed?

Where a recommendation is drastic or radical, care must be taken to see that it is justified by the materials studied and the evidence presented. It is not enough to show that serious evils exist; it must also be shown that these evils are greater than those due to the disturbance caused by the change, as well as those which may result from the operation of the new method.

As an example, it would not be enough to show that slums exist, in order to decide that the government itself should embark on a large-scale housing program. It would be necessary to demonstrate clearly, in addition, that certain of the conditions responsible for the high cost of housing cannot readily be remedied, that subsidies to private construction will not be adequate to the need, and that government housing is feasible and reasonable from a variety of standards. Or, to give another instance, it would not suffice, by showing that a concern's practice in selecting employees was not working well, to conclude that psychological tests should be instituted. One must show, as well, the particular reasons why such tests are necessary, the probable feasibility of such tests for the given conditions, and the justifiability of the expense involved in their development.

A proper recommendation, therefore, is one for which the way has been fully prepared through evidence and reasoning pointedly leading to the conclusion. It is usually true that the conservative, limited recommendation requires less supporting material in the text, and that the radical or broad recommendation demands a fuller presentation. But this is not likely to be the case even with regard to the conservative recommendation if it has disregarded the facts or is rooted in bias.

Restraint, moderation, candid admission of difficulties and uncertainties make a report more reliable and valuable than one which overdraws on its knowledge. The purpose of emphasizing the need for valid and acceptable conclusions and recommendations is to assure more critical and intensive thinking.

CHAPTER V

PREPARING THE MANUSCRIPT

1. Conserving "Inspiration"

Whether one should wait for the right mood and prepare a large part of his report at that time, or write it piecemeal as ideas occur, is a question which troubles many writers. Experience gained in writing proves that for most people it is unwise to neglect the product of any passing moment which brings a worthwhile thought. "Inspiration" comes to different people in different forms. Many of the best ideas on a subject come with ease when a writer is thinking of something else. Sometimes he hits upon an apt sentence or a striking term; on another occasion "inspiration" may bring a whole flow of ideas and a feverish desire to produce.

One who is engaged in writing a long manuscript will lose a large number of his best thoughts and expressions if he does not conserve these momentary flashes by immediately noting them, and then using an early opportunity for putting them into well written style. To leave all one's writing to a concentrated sitting is to add a heavy mental strain to manuscript composition.

On the other hand, it is normally unwise to wait for the inspired moment before tackling one's work.

The lethargy and inertia experienced during one's first fifteen minutes or half hour are to be accepted as a hurdle which, once passed, may lead to surprising activity. Many writers report that often when they sit down to work, their minds for a while remain a complete blank. But after the original apathy is overcome, persistence usually rewards the energy shown, because a batch of manuscript pages is the result. Adherence to routine is important in effective work, and preciseness and regularity of habits generally characterize successful creative writers. If, however, unusual mental resistance is encountered, it is sometimes helpful to disregard the planned program for a few days, as far as actual writing is concerned, without neglecting to do thinking about it from time to time. The experience of many is that by some curious process the unconscious mind seems to work on the problem and that, when writing is resumed, things which at first seemed difficult become easier to solve.

2. Procedure of Writing

a. Use of the Outline

Authors differ as to the methods of writing their manuscripts. Some prepare a complete final outline, then write a tentative first draft of all the sections on which they have data. That is a desirable process because it produces an approximation of the final form, and even if all the information is not available, space may be reserved for later insertions. To have such a first draft gives early suggestions for improvements in style and rearrangements of material.

Other writers prefer to prepare one chapter at a time, making each fairly complete before they go on to the next. This is possible when each chapter is more or less independent of the rest and the material can be developed in separate stages. One should use the method he prefers or which suggests itself by the nature of the problem.

In any event, as indicated in previous pages, writing should conform to a schedule so that ample time will be allowed for this part of the work. Frequently the writer underestimates the difficulties involved. He may spoil his manuscript if he is forced into hasty compilation in order to make the report available on the date needed.

Individuals vary in the actual practice of writing, and there is no one best way which will prove easy or natural to all writers. Some like to put down ideas as they come to mind. With this tentative product before them, they trust to painstaking revisions to perfect the result. Others prefer to think their ideas through carefully and to express themselves in the best vocabulary at first writing. As personal preference must be allowed for, there is no superiority of one method to another. Each writer must find the way of working which involves least strain and the best results. After all, there is only one test of good writing—the final product.

b. Revision as a Part of Writing

From this point of view, there is only one goal in good writing, *viz.*, to achieve a degree of perfection *in the final result.* It is scarcely an apology for a

poor manuscript to say that it was struck off in an odd moment; it is no detraction from a good one that it took a long while. The rule for good writing is to work on every detail of a manuscript, just as a painter does on a canvas, improving it until there is hardly a word which seems out of place.

The writer should feel no disappointment, therefore, if his first effort is not in a form satisfactory to himself, and if several revisions are required to make the manuscript adequate. It is instructive to look over original manuscripts important enough to be in the museums and to see that some of the world's great literature has been the result of just such a process of patient improvement.

Novices in writing are unduly oppressed by the fact that they find it necessary to make meticulous changes in sentence structure and language, while mature writers accept this process as an inescapable routine of the art. They know that careful scrutiny and alteration of a manuscript may improve it to such an extent that the final form may be almost unrecognizable in relation to its poor beginning. It is this published form in which talent becomes known and not in the private working papers of the author.

3. Eliminating Unessential Material

The gathering of data inevitably involves the assembling of much more information than it is necessary or wise to include in the final manuscript. A research report must contain all the necessary information and yet be free from detail that would interfere with its readability and usefulness. Discrimination

must be exercised in retaining the essentials, discarding the rest so as to reduce writing for the author and strain on the attention of the reader. A manuscript should, therefore, be cut, chiseled, chipped, and filed until just the right result is secured.

Normally a writer finds it extremely hard to cut his material. He is unable to overlook the amount of time or effort it may have required to obtain or prepare it. He tends to forget that the only criterion of its value in the final report is its *importance to the reader*.

Material which may be interesting in itself but which does not have any value to a report should, in the main, be discarded. One need not follow this as an absolute rule, since an occasional citation of something which is interesting rather than germane or important may make the report more readable. These, however, are luxuries rather than necessities, and the creation of interest should not be made to depend upon them.

Material in support of points which the intelligent reader is likely to accept without proof, or belabored explanations when a concise statement would make the point to better advantage, may well be omitted. One should also avoid an excess of examples, statistics, or quotations. They slow up the reading or become tedious. Likewise, too many modifications and qualifications of incidental points are pedantic.

The great advantage of a rigorous questioning of the need for retaining material is to secure unity, of both content and impression. A report presumably deals with a specific subject. Content that draws the

reader away from the subject destroys the definiteness of the presentation.

4. Organization and Continuity of Material

The organization of topics in a manuscript is a matter requiring the most careful thought. The aim should be to make the order so apparent that no difficulty is imposed upon the reader in becoming aware of the progress of facts and ideas.

The sequence used should be adapted to the purpose of the report and the persons to whom it is addressed. If, for example, the report is intended for those who have so keen an interest in the subject that they are certain to read it carefully, a simple chronological or other logical order may be adequate. But if the problem of holding the reader's attention is involved, arrangement of topics from this standpoint should be considered, and the sequence should be calculated to arouse both an initial interest and a desire for further reading. In those cases some of the more practical or significant aspects of the subject might be given attention at the start, even at some expense of logical order. But in any event, the writer should try to keep all material dealing with a specific point in proximity.

In order that the logical progress of thought may be made evident, there is an adage applying to effective public speaking which may be recalled here. The gist of it is: "Tell your audience what you are going to say, tell them that you are saying it, and tell them you have said it." Applying this maxim to the writing of a report, the writer might find it well to give

advance notice of what he intends to consider; when he comes to that point, he might make it clear that he is discussing it; and occasionally he should review what has already been brought out, if such review will add to the sense of continuity.

By following this principle, intelligently and not clumsily, at the beginning of chapters, in the middle of long chapters, or where needed, a report may be so constructed that the road of thought will be clearly marked and easy to follow. As stated below, it should not be overdone.

A test of good organization is for the critical reader to be able to take up pages or paragraphs at random and ask why they are in their particular places. If he can see a good reason, through cursory examination, for the relative position of each item examined, there is clear organization.

Perhaps the best device to keep the relation of ideas understandable to the reader is the use of proper transitional material, such as connective words or sentences. The relationship of thoughts is thus advertised. If skilfully done, the reader has no reason to be confused as to the connection between one sentence and the next, one paragraph and the next, or one section and the next. The nature of the connective shows how and why a statement amplifies a former statement.

The relationship between one paragraph and another can be established by a transitional sentence, while a whole new division may require a set of sentences or a paragraph to bridge the transition between

it and the previous section.[1] Often this means that in order to keep the reader's thought on its track, the end of a preceding division, as well as the start of a new one, must be adapted to the transition.

Organization of this sort, while extremely important, may be overdone. If the writer devotes too much of his manuscript to referring back and forth to different parts, the effort becomes too obvious and the reader may be irritated by it. This danger may be prevented, in part, by limiting the number of *direct* cross references. The discussion may by subtle devices indirectly achieve the same result.

5. Factors of Style

a. Readability and Clearness

Unless the writer is preparing a document to be read only by a particular individual, he should avoid the assumption that the reader has all the information necessary to understand it. No matter how specialized the group in view, the author should acquire the art of so expressing what he is trying to do and how he is doing it that it will be possible for the person of average information to find it readable. Great scientists have made intricate technical subjects interesting and even fascinating through the power of a good clear style. The danger of forgetting this need

[1] Excellent suggestions with regard to the organization of long manuscripts and the use of connective sentences and phrases are given in Edwin C. Woolley, *New Handbook of Composition* (Boston, D. C. Heath & Company, 1926), pp. 123–132.

is greatest in the case of students, who sometimes write as though the manuscript were solely for the instructor. They thus omit information of a character that is essential for other possible readers.

Among the methods that add to clearness of presentation are:

Paragraphing. This is regarded as so important an aid to clearness that one authority states:

> Paragraphing, if properly employed, gives the reader as much assistance in understanding a whole composition as punctuation gives him in understanding a sentence. Parts of a composition that are distinct in topic may by paragraphing be made distinct to the eye also—an effect that decidedly promotes clearness.[1]

In general, therefore, a paragraph should not be more than one-half a page in length, and less if convenient. However, paragraphing can be overdone, and if too frequent, tends to annoy the reader and to make the information look thinner than it really is. Hence short paragraphs of a single sentence or two should be employed only rarely.

Use of topical or suggestive sentences. In well written reports, a running summary of the manuscript can be obtained by scanning the first and last sentences of each paragraph, without reference to the middle of the paragraph. Topical sentences should vary in form. They should not decrease interest in the rest of the paragraph by telling too much of the story. In some cases it is well to use sentences summarizing the material within the paragraph, but in

[1] WOOLLEY, *op. cit.*, p. 159.

other cases topical sentences should contain merely a suggestion of the nature of the issue raised or facts given in the paragraph. Occasionally the topical sentences may be put in question form.

Adequate use of concrete examples and illustrations may be made a particularly helpful part of a report, for these clarify points which might otherwise be obscured, and tend to give the reader self-confidence.

Use of short sentences, rather than long, rambling ones with complicated construction, is an excellent way of maintaining good standards of writing.

Substitution of simple terms for unfamiliar ones. Where this is impossible, explanation should be supplied of the terms not generally known or of those employed in an unusual sense. As an illustration, a report on mutual savings banks omitted to explain that the term "dividends" was equivalent to what in other cases is called "interest," and resulted in misunderstanding.

Avoidance of vague, general terms when specific terms may be used. Vague terms look slipshod and have the further disadvantage of weakening confidence in the author. Instead of saying, "A number of questionnaires have been sent out and replies to most of them were received," it may be better to state a precise number mailed, or some approximation of the number, and the number of replies.

b. Interest

There is no reason why a report on even the most technical subject may not be made to have elements

of interest, for this, aside from the matter of content, is partly a matter of style, partly of arrangement. A good rule for a writer is: *In your investigation, think of the subject. In your presentation, think of the reader.* The prominence enjoyed by articles and studies on some of the most technical subjects has been due to the fact that they have been written in absorbing style without sacrifice of accuracy or completeness.

To make a report interesting, it is necessary first to make it inviting in appearance. One of many obstacles to interest is purely visual, *viz.*, the arrangement of material on a page. That is why a book in which the content is broken up presents more of an appeal initially than a book which seems heavy, although in fact the latter may be more entertaining when one begins to read. In technical material, therefore, it is necessary to avoid long pages of type unbroken by headings or paragraphs.

Two important aids to visibility are: frequent but not excessive interspersion of subtitles and the use of short paragraphs. In the use of subtitles there are certain important points of detail and construction to be observed which are treated more fully in a later section. Paragraphing has already been discussed.

Interest is not a mere matter of form, for a stimulating content may keep attention active in spite of obstacles. What slackens interest is too slow a progress in ideas. The reader wants to learn something new in every page or in every paragraph; if possible in every sentence. Therefore the writer should try to advance the discussion throughout

by making a point important to the continuity in almost every paragraph. When material is padded or wordy, interest lapses.

Another aid to the maintenance of interest is the avoidance of tedious details in the body of the manuscript. They make the reader lose the continuity and keep him from seeing the more important material. Therefore, if they are not essential in the body of the discussion, they may be put in appendixes and merely referred to in the body of the manuscript. This makes it possible for the individual who is interested only in the principal points to read the main text, and for the one who wishes further information to turn to the appendix dealing with such data.

"Human interest" material, in the form of an anecdote or fact that touches one's emotions, is not out of place in research reports or other serious manuscripts. Often a suggestive word or expression gives a lighter, more human, tone to the whole material. Such a note can enliven discussion which otherwise might be dull. But tact and skill are required in the use of such items, and the writer should beware of including them in a way which appears forced and calls to mind the after-dinner speaker.

While the suggestions presented would make a manuscript more readable, the problem of developing the reader's interest is more than a matter of rules. It involves an intuitive capacity for making certain aspects of the subject significant to the reader. To assume that a subject is uninteresting is unwarranted. Usually when a writer makes such an assertion he

shows that there is something lacking in his own attitude toward the subject, or that he has not learned how to translate his enthusiasm for it into his written manuscript.

c. Modesty

To avoid the appearance of overassertiveness, a report should be written in the third person. The author should guard against unnecessary reference to himself, even in such indirect expressions as "in the opinion of the writer," or "the writer believes." If the author does find it necessary to make a personal assertion, the use of a frank "I," "myself" or "me" is preferable to the editorial "we," as the latter gives an appearance of affectation. Also to be avoided is the pronoun "you," which indicates that the author is talking directly to the reader, and suggests a sermon, a lecture, or an attempt to give instructions.

One should be on guard against a form of unintentional self-praise seen in such expressions as "we have now shown," "it has already been proved," and similar clauses. These expressions on the part of the writer seem to take it for granted that he has fully satisfied the reader by his facts and reasoning.

The general tone of one's statements should be cautious, and the strength of the report should come through the nature of the evidence and its logical presentation, rather than through strong personal assertions. Sweeping statements or wide generalizations are to be used sparingly, if at all. Such expressions as "there can be no question," are often too

strong for the material that follows and suggest that one is "playing authority." It is clear that one's conclusions should not depend upon expressions like: "It has been established beyond doubt," "The great majority of people believe," or "In every single case where this has been tried." These are statements which are reserved for outstanding experts who have made exhaustive investigations, but are likely to be viewed with suspicion when made by others.

An occasional admission of the difficulties of a problem or the inability to get all the facts required has a wholesome effect in creating a sympathetic attitude on the part of the reader.

d. Sportsmanship

In quoting any data which the writer has not himself gathered, in mentioning any fact which he has not obtained from original sources, or in stating conclusions which the writer has taken directly from someone else, it is no more than fair to indicate the authority. Failure to do so may involve the charge of plagiarism and even the danger of legal action on the ground of infringement of copyrights. This discourtesy is often a mark of inexperience and in other cases denotes laziness or a willingness to misappropriate someone else's work.

Apart from the injustice such a practice involves, it is exasperating. Items which are obviously quotations or rewrites, but which do not give a clue as to the primary sources of information, are resented. The reader may desire the additional facts therein contained or verification of the data. The absence

of references as to sources may even suggest that the writer wishes to cover his tracks.

Hence citations of sources should be ample and explicit. It is not enough to give as authority, for example, "Department of Commerce," or some other vague reference. Source material is normally something secured on a given date in a letter, periodical, pamphlet, report, or book or from a specific person or agency. The details of citing references and footnotes are of such importance that several pages are given to this matter in a later section.

e. Danger of Excessive Quotation

A report should not be overburdened with quotations and excerpts from other people's work. Some literature of this character resembles a photograph album. The writer should regard himself as an investigator and interpreter. He should stand on his own with regard to the work he submits, and show his capacity for preparing his material in a new and better form than is otherwise available.

Yet there is a place for quotations. To assist the writer in determining when to employ them, a later section deals with "The Proper Use of Excerpts."

6. English and Rhetoric

The structure of sentences, the choice of words, the correctness of spelling and punctuation, and other matters of taste in the preparation of a report are important elements in the general impression made. There are so many points of style and detail to take into account that no attempt will be made to summarize them here. A writer should frequently

refresh his background by reading good manuals of composition and rhetoric. Facility in writing and correctness of usage are attainable by study and practice. Careful scrutiny of every sentence and conscientious attention to every doubtful term or expression will build up habits of good English which should make each successive effort easier. To reduce inertia in consulting references, the writer should have at his elbow some standard books of reference.[1]

a. Simplicity of Language

The writer who is anxious to produce work of literary as well as technical character may work himself unwittingly into an oratorical or flowery style. This is not only an unnatural form for most people, but has a tendency to produce exaggeration or overstatement, with the added possibility of subjecting the report to derision. One should also be wary of a sudden change in the tone of a report by the use of over-elegant language, poetic terms, and other expressions which seem out of place.

The writer will do well to give his material a human touch for this adds to the pleasure of reading

[1] The following are especially recommended: EDWIN C. WOOLLEY, *New Handbook of Composition* (Boston, D. C. Heath & Company, 1926), 343 pp.; GEORGE B. HOTCHKISS and EDWARD J. KILDUFF, *Handbook of Business English* (New York, Harper & Brothers, 1920), 231 pp.; H. W. FOWLER, *A Dictionary of Modern English Usage* (London, Oxford University Press, 1927), 742 pp.; and ROBERT R. AURNER, *Effective English in Business* (Cincinnati, South-Western Publishing Company, 1935), 681 pp. Dictionaries which are probably most authoritative with regard to what is good English are: Webster's *New International Dictionary*, Funk & Wagnall's *New Standard Dictionary*, and Murray's *New English Dictionary*.

and provides the manuscript with an underlying suggestion of the personality behind it. But this should not be a cause for oratorical flights. In particular, the use of short, simple, expressive words should be preferred to long, academic terms of Latin origin.

b. Hackneyed Terms and "Bromides"

Often a writer does not realize how many hackneyed terms he employs. To him such expressions as "working like a Trojan," "there is method in his madness," or "the best laid plans of mice and men," may seem bright embellishments, but they are expressions which have been bandied about so much that they are commonplace. One gets weary of reading, "Every man with a drop of red blood in his veins," or hearing "I am not much of a speech maker but . . . " Their use denotes a lack of sensitiveness to suggestions of the trite and the conventional.

There is no golden rule for avoiding commonplace terms and platitudinous thoughts. A person can cultivate taste and a sense of humor through reading various types of literature, through seeing good plays, through knowing bright people. In writing, one can develop a critical faculty through reflection and conscious effort. A helpful practice in this respect is to go over a manuscript to see how many familiar phrases one is using, and to attempt to substitute personal expressions where there is a suggestion of triteness.[1]

[1] A list of trite expressions and overworked literary illustrations and proverbs are to be found in Woolley, *op. cit.*, pp. 15–18.

c. Faulty Expressions and Slang

The types of English expression may be divided into literary usage, common usage, colloquial usage, and slang. The writer of a report would do well to preserve at least good common usage and to avoid colloquialisms except when consciously decided upon as the apt or pungent term appropriate to the occasion.

In most cases slang hurts a report. Several years spent in a restricted environment may so accustom a person to expressing himself in a particular vernacular that it renders him unaware of his frequent use of slang and unpleasant terms. This is a danger in the case of students who have uncritically absorbed the collegiate atmosphere and of practical men who have long been engaged in a particular activity or business. One should, therefore, make a special effort to have his manuscript free of such expressions or of suggestions of them. Good writing is aimed to serve the whole English-speaking world, not any particular locality.

It would require too much space to do much more than call attention to the frequency of misuse of English. A glossary of miscellaneous faulty expressions will repay one's scrutiny. Illustrations of words which are incorrect or which are commonly used incorrectly are:

anywheres	enthuse
aggravate	liable
allude	loan
apt	nowheres
awful	transpire
claim	win out

One of the questions frequently raised is the validity of the "split infinitive." The infinitive form of a verb which is immediately preceded by the preposition "to," as for example, "to discuss," "to consider," is better left without intervening words. If another word is placed between the preposition "to" and the verb, as in "to fully describe," or "to thoroughly consider," etc., it is a *split* infinitive. While logically this may be a more expressive form to employ, and it is permissible if properly used, it is not clear just when it will be considered so by the captious reader, and there is still too much prejudice against it to make it safe.

The use of "above" as an adjective, while not incorrect, is not so desirable as "the foregoing," "the preceding." Hence, preferably, "above" should be used as an adverb. An instance of such a substitution is to say, "the author mentioned above," rather than "the above author."

d. Consistency of Style

One of the conspicuous details of style to observe is consistency. If the writer decides to spell the word "through" as "thru," he should always spell it that way. If he uses the sign "%" for per cent, he should follow a consistent principle except, perhaps, not at the end of a sentence. If a book is cited with the author first, then the title and the publisher, the next citation should normally parallel it to the slightest details of punctuation. If a word is capitalized or hyphenated in one place, it should be similarly treated in another.

Variations are permissible, but they should be purposeful, not accidental. As long as a consistent principle is borne in mind, such variations will be made for special purposes, such as to improve clarity or appearance, and the reasons for them will normally be understood by the critical reader.

These meticulous points may seem trivial as compared with the importance of the research done, but they may, in fact, have great weight in conditioning the minds of alert readers. Slipshod practice in these matters suggests similar carelessness in more technical aspects of the study. In any event, whatever may be the writer's personal opinion of these "details," he would do well to take account of the prejudice likely to be encountered in neglecting them.

To secure consistency in style throughout his manuscript, it is best (since experts do differ) for an author to adopt, at the very beginning of his work, some standard unabridged dictionary and an authoritative writer's manual, and to use these alone as his guide. By this method he will give his work not only a high standard but also uniformity in details.

e. Repetition of Terms and Names

Technical writing is sometimes characterized by repetition of essential words because the author thinks this unavoidable. If enough thought is applied, however, substitute terms conveying the same idea can almost always be found and a more pleasing effect produced.

More generally writers tend to tax the reader's patience by employing to excess a particular set of

emphatic or descriptive expressions. Repetition of the words "inherent," "fundamental," and similar terms, weakens their effect and attracts the reader's attention unfavorably to the author's style.

The danger is greater in the case of an unusual word. It may be especially apt when first employed, but if repeated may suggest a pet word or a restricted vocabulary.

A source of repetition in certain types of manuscripts is found in the references to institutions or individuals. The best rule to follow is that in referring to an organization for the first time, the full legal name should be used, *viz.*, The Great Atlantic and Pacific Tea Company, or the Amos Tuck School of Administration and Finance. When it is clear what organization is to be discussed, a short title, such as "the Company," "The Tuck School," or just "the School" will suffice. If several organizations are to be mentioned throughout, convenient abbreviations may be adopted, *viz.*, The A. & P., without quotation marks.

In referring to an individual for the first time, it is preferable to give his full name with the prefix of his sex, *viz.*, Mr. George W. Harrison. If there are no other persons by that name to confuse the mind, he may later be referred to as Mr. Harrison. Only when a name is to be used frequently and the description is intended to be somewhat intimate, or the person is a public figure, should the "Mr." be omitted. The use of abbreviations of given names is considered at the end of the next section, which should be read in this connection.

f. Spelling and Abbreviations

There are many words which are commonly misspelled, even by well-educated people, in spite of the frequency with which such errors have been called to public attention. So many persons have their blind spots with regard to spelling that the only safeguard for a writer is to consult from time to time the lists of words commonly misspelled.

The available handbooks on English, such as those suggested in the present guide, contain illustrative lists. Words frequently misspelled in research reports include the following:

accommodate	incompatible
affect	indispensable
all right	inescapable
allusion	maintenance
analysis	oneself
analyze	per cent
consensus	percentage
dependent	personal
dependant	personnel
develop	separate
development	stationary
disappear	stationery
disappoint	supersede
embarrass	therefor
exaggerate	therefore
harass	weird

Phonetic spelling, though logical, and probably to be desired, has the disadvantage of attracting undue attention among people who are wedded to the traditional usage, while customary spelling does not raise the issue. The majority of readers of a book or report

are likely to be annoyed by radical departures from common practice.

In any event, phonetic spelling should be limited to words now so spelled by authoritative periodicals. When phonetic spelling is used, consistency requires that a word should not be spelled in two or more ways in the same manuscript. A standard recent dictionary should be the authority used.

Capitals should not be used in words for emphasis but only when they add to clearness and are warranted by the rules of rhetoric. The writer whose mind is hazy regarding the use of capitals should review the established principles. In general, modern practice economizes on capitals.

Unnecessary division of words at the ends of lines should be avoided. This will tend to prevent errors and queer breaks in words. It is not good form to divide very short words, such as those of four letters. But if the dictionary is regularly consulted in the case of longer ones, breaking words is an advantage and makes possible an even right-hand margin which greatly improves the appearance of typewritten pages.

The representation of numbers within the text involves various adaptations in form. When numbers are used frequently, it may be advisable to use the digit figures uniformly. To put 00 after a decimal point or 0 before numbers beginning with a decimal point is usually unnecessary. Where a small figure or sum of money is mentioned only occasionally, it may be preferable to write it in words. For example, where it is an isolated case, fifty-seven cents is better

than $0.57 or 57¢. Many of these points regarding figures may not apply to highly technical material or mathematical treatments requiring special adaptations of style.

Abbreviations of ordinary words should be used sparingly. In the more technical business reports, however, abbreviations such as the B. & O., for the Baltimore & Ohio Railroad may be found an aid to ease in reading. Among the abbreviations which are considered poor form are shortened titles, such as "Capt. Jones" for Captain Jones; or "Gen.," "Col.," "Prof.," for the longer words. Contractions such as "don't" and "haven't" are not appropriate to research reports and should never be used, unless in a quotation.

Abbreviations of technical terms and proper names should be used with discrimination when the report is to go to anyone who may not be familiar with the field. A scientific abbreviation like B.t.u., which seems to the specialist as entirely elementary, or colloquial reference to Odd Fellows as the I.O.O.F., may be a source of mystery and discouragement to those who do not happen to associate the abbreviation with the names involved. Indeed, where many abbreviations are used and these are interspersed throughout a manuscript, it may be wise to insert a page of abbreviations after the table of contents or at the end of the book. If the abbreviation is to be used only occasionally, why abbreviate at all? If a particular term appears frequently within the confines of a single chapter, a footnote designation the first

time it is abbreviated, or an explanation in the text itself, will be of aid to the reader.

g. Punctuation

A writer should not rely upon punctuation, such as quotation marks, exclamation points, or other marks in order to secure irony, humorous effects, or emphasis. These results are to be obtained through the medium of expression, mainly by subtleties of thought or suggestion, not through novelties in punctuation. In punctuation there are established usages, and a report in the field of business research is not the best place for doubtful experiments in new forms.

7. Paper and Typing

A large part of the effect of a report upon the reader results from the visual impression made by the manuscript. Taste must be shown in the selection of the kind of paper to be used, the margins, the type, and other elements. There is everything to be gained by neat and pleasing pages and much to be lost by a presentation which irritates the reader and taxes his eyesight.

A few illustrative suggestions given below are based on the requirements of the Amos Tuck School in manuscript work. These standards are recommended for general application. They apply to reports which may be bound in hard covers and require special care with regard to margins and placing of exhibits.

A manuscript as finally submitted should be written on bond paper of 20-pound weight and 8½ by 11 inches in size. It can thus be filed in any standard size case.

Only one side of the paper should be used. There are no exceptions.

For carbon copies a good, strong, thin paper without a glaze should be selected. Onion skin paper is not desirable as it is difficult to handle and its glaze makes it hard to read.

The typing should be in medium black ink and may be either pica (large) or elite (small) type, but not more than one kind of type should be used. The light typing resulting from an old ribbon should be avoided as it strains the eye, while heavy inking smudges the paper and may ruin the appearance of a manuscript.

All margins and indentions should follow a consistent rule. (Tuck School margin requirements are: 1½ inches from the left, ¾ inch from the right, 1 inch from the top, and ¾ inch from the bottom.) If typing with smaller margins becomes necessary on any page because of a table or exhibit, care should be taken to leave at least space enough for binding at the left and for trimming the manuscript on the other edges.

Paragraphs should be indented at least ½ inch from the line of type.

Pages should be numbered consecutively (without reference to chapters) in arabic numerals, near the top of the page, in the upper right-hand corner, and about two inches from the right margin.

A number should be assigned to each page in order to make sure that no pages are lost. This includes all pages of normal size, whether or not containing illustrations, but should not include exhibits of smaller or larger size than the normal page as they are special inserts. Interpolated pages may be marked 15*a*, 15*b*, and so forth, in accordance with the number of the preceding page. If any pages are

removed from the manuscript for any reason, the preceding page should be double-numbered, as for example, 15 and 16, or 15–16.

Double spacing should be used throughout, with two exceptions, *viz.*, (1) footnotes, no matter how long, should always be single-spaced, and (2) long quotations in the body of the text, if over fifty words, besides being indented ¾ inch from the line of type at the left, should be single-spaced.

Paragraphs in single-space material should be separated by double space, to avoid an over-compact, forbidding appearance.

A blank fly-leaf should precede the title-page and a blank fly-leaf should follow the last page.

Numbered indented paragraphs should have numbers close to the first word of the paragraph so that the number will be included in the indention.

8. The Proper Use of Excerpts

The use of excerpts or quotations raises several questions of judgment which must be decided in each case by the individual writer. To sprinkle a few direct quotations in appropriate places in a manuscript lends the prestige of outside authority and the color of a variety of expression. The danger is, however, the use of direct quotations to excess, either in the number of such excerpts, or in the length of those used, or in both. As a consequence, the report may give the impression of a mere compilation or be strongly suggestive of mental inertia or laziness in regard to summarization and interpretation through rewriting of material. Exception must be made, of

course, in the case of manuscripts which are intended to be nothing more than a collection of statements of facts or of opinion.

An excerpt from a periodical, book, or report should be as short as possible. It should rarely be half a page, and almost never be more than a full page. One reason is the effect that may be produced. Since, as indicated in the foregoing, long quotations should be put in single space, if they are less than a page they show up better against the double-space material in the text itself. If excerpts are more than a page, the reader tends to forget whether he is reading an excerpt or the writer's own material. This is illustrated by the long excerpt introduced on page 98.

The writer would, therefore, do well to examine his quoted material in the light of the following questions.

Is there anything especially apt or original about the style of expression in the material quoted?

If not, does any unusual authority or additional prestige attach to it?

Has the individual or report quoted been used so frequently that material from this source occupies a more prominent place in the report than is justified?

What is the minimum possible length of the item which may be quoted without tearing the item unfairly from its context?

Is the main point for which the quotation is selected so interwoven with conflicting material and side issues as to confuse the reader?

Is the person quoted so identified with controversial issues that many readers may be adversely affected toward the report by the inclusion of such material?

Is the excerpt cited so old or so well known that the reader will get the impression that the manuscript as a whole is a rehash of familiar material?

Will a better impression result from a statement based on the investigation in general than from quotations on borrowed authority?

Quoted passages are usually treated in one of two ways. If the passage is short, it may be enclosed in quotation marks and used as part of the text. In this case the standard form is to use the double quotation mark, not the single mark still used by some periodicals. If, however, the passage is more than fifty words in length, it should be set off in a contrasting form to indicate its borrowed origin. This is best done by typing it in single space and indenting it about ¾ inch, from the left margin of type only. It should be separated by two spaces above and below, and each paragraph within the indented material should be separated by double spaces from the previous paragraph. The passage thus indented need not be enclosed in quotation marks, as it is clearly a quotation. The omission of the quotation marks has the advantage of reducing confusion when a quoted passage occurs within the indented material. In printed material, distinctions in type may make it unnecessary to indent single-space material.

A quoted passage based on a book, report, or authority suitable as a reference should be accompanied by the source. This is indicated at the end of a

quotation by a number slightly raised above the last word, which has a corresponding footnote at the bottom of the page showing where the item may be found. Other details regarding footnotes are given below.

9. References, Citations, and Footnotes

Footnotes are designed to serve several purposes. Because of indiscriminate and excessive use, footnotes raise questions of style. They are most clearly justifiable when they are the means of giving the exact reference or authority for facts or statements appearing in the text, or the cross reference to other parts of the manuscript containing discussion pertinent to the topic being considered.[1]

Footnotes are also used to add incidental comments, quotations, and other material illuminating the text. The reason for putting these in footnotes is that they might hinder smooth reading or disturb the train of thought if put in the main part of a page. But many readers will testify that it is more of a strain to skip about between text and footnotes than it would be to have them where they logically follow. When cleverly handled, an occasional footnote, with interspersed comment, is an attractive feature of a book, but if too frequently inserted may suggest that the writer has chosen an easy way to introduce something which otherwise would have to be more carefully handled. In other cases the excess of footnotes gives an impression of heaviness and pedantry.

[1] For example, see paragraphs on this subject just before Section 10, *infra*. (If the cross reference is to a previous page, one uses the term *supra* instead of *infra*.)

As stated above, footnotes should be indicated by numbers raised slightly above the line of type of the text. This method is the best because other ways of indication, such as numbers merely put in parentheses, may introduce confusion with numbers separating divisions of the discussion. The appropriate place for the footnote number is at the end of the passage which the footnote supports. Thus, if the authority for a quotation, or for the facts of a whole sentence, is given in a footnote or amplified there, the reference to it belongs at the end of the quoted text. If, however, the footnote refers to one date or name within a sentence, the number should be placed after the word to which it belongs.

Only when a manuscript is being prepared for printing is it advisable to put footnotes immediately after quotations instead of at the bottom of a page. The footnote put at the bottom should be separated from the text by a double space and be under a short line drawn at the left for about two inches. Each footnote should begin on a separate line.

The numbering of footnotes should begin anew on each page. Any other plan, such as consecutive numbering within a chapter, complicates the inclusion of new footnotes, as a single addition may require the renumbering of all of them within a chapter. In tables of figures, however, footnotes should preferably be designated by symbols such as asterisks (*), daggers (†) double daggers (‡), and other non-numerical signs, in order to avoid the possibility of statistical errors due to confusion with the figures in the table.

Sources should be cited in a standard way. When a book or report is referred to for the first time, the necessary information should be given in full in a footnote at the bottom of the page. Perhaps the first rule to bear in mind is that the data required should be copied from the title-page, not from the cover, as the latter contains the minimum of information necessary for identification purposes and is often incomplete or misleading. The form to be used varies somewhat in accordance with the nature of the citation, and depends upon whether the reference is to a book, an article in a magazine, a legal case, a statute, a personal communication, etc. Suggestions as to the manner of citing these are therefore presented, including a paragraph indicating how repetitions of the same reference should be handled.

References to a book depend upon whether the book is a compilation of selected articles or chapters by various writers, or is consistently the work of one or more authors mentioned on the title-page. In citing a book which is not a compilation, the reference should contain the following information, in the order named:

Author, with initials or given names in their normal place, with a comma to separate the whole name from that of the name of the book or report.

The name of the book or document, underscored, with the subtitle, if significant, not underscored. No comma or period follows. It should be observed that underscored material becomes italicized when in a printed matter.

Parentheses enclosing place of publication, the publisher, and the date of publication. The detail to be given here in case the place and publisher are foreign or obscure should be

adequate to supply the information which the reader may require in order to obtain the volume.

The number or numbers of the page or pages in which the quotation appears.

If the book has more than one volume, the volume number should be given before the page number.

If the book is printed in a foreign language and the reference is submitted in translated form, the fact that the original is in a foreign language should be made clear.

The question sometimes arises whether one should use initials in the name of the author. If an author has only one given name and that is mentioned in the title-page, there is no need for abbreviation. If he has two or more given names, all except the first name should be designated by initials. If the author is more easily identified by abbreviating his first given name, then the second name may be supplied. In general, a long list of given names should be used only for a person of great prominence, or where the abbreviation of a name might produce a queer effect, as, for example, George B. Shaw, for George Bernard Shaw.

In citing a reference to an author who merely has a chapter in a volume, the form used should be in part like that for a book and in part like that for a magazine article, as explained in the next paragraph. An example of the form used is given in the footnote below.[1]

[1] JOSEPH H. WILLITS, "Industrial Relations in the Bituminous Coal Industry," in *Wertheim Lectures on Industrial Relations*, 1928 (Cambridge, Harvard University Press, 1929), pp. 33–59.

Articles in periodicals are cited in a different fashion from those in books. After the name of the author, the name of the article should be enclosed by quotation marks, and not underscored; the name of the periodical follows, underscored; the exact date of publication, *viz*, year and month if issued monthly, or the exact day if a weekly or daily; and the page number of the quotation. If the article as a whole is cited, the page numbers at the beginning and end should be given. An example of such a citation is given below.[1]

The question whether or not the volume number of a periodical should invariably be included proved a source of difference among those engaged in the preparation of this manual. It was agreed that in the case of foreign, technical, and special periodicals, or old issues of other publications, the volume number would be an additional protection. But when recent issues of magazines of general circulation are cited merely to show one's source, does the reader require, in addition to the date of publication, the exact volume number? It would appear that only rarely would this be the case, but librarians consulted thought otherwise. They pointed out that many bound volumes do not include the dates of the periodicals. One librarian writes:

> Citing the volume number is more and more becoming an accepted practice. There are few libraries in the country where a reader could obtain, let us say, the December, 1928, issue of the American Economic Review, without going to

[1] GEORGE W. EDWARDS, "Government Control of Foreign Investments," *The American Economic Review*, December, 1928, pp. 684–701.

the trouble of ascertaining the volume number or asking a library page to do so. The use of the volume number serves also as a check upon typographical errors in the date cited, for it is unlikely that two such errors would occur in the same reference.

This makes a good case for noting volume numbers in the original bibliography actually used by the investigator, but still leaves the issue whether, in a published report intended merely to show one's sources and which may not be used for further research by the reader, it is worth adding one more item to the list of those whose accuracy must be checked.

If the volume number of a periodical is included, this should be accompanied by the year of publication, for it is often extremely irritating to have a volume number given without indication whether it was published in 1900 or 1935. The place of publication of a periodical and the name of the publishers should not be included in the case of any well-known publication, such as *The Atlantic Monthly*, but if the publication is a special one and not likely to be known by most people, it would help the reader to know where to address a communication.

Legal cases, to be cited fully, should contain a short name of the case, the volume number of the court report, the name of the court, the page number, and the date. Certain abbreviations, familiar in legal citation, can be learned by a small amount of training. If the writer has never had such training, it would be well to make sure that his legal citations are correct. For example, an important child-labor

case decided by the United States Supreme Court, forbidding the transportation in interstate commerce of the products of child labor, is identified completely below,[1] since the abbreviation "U.S." stands specifically for the United States Supreme Court. The lesser Federal courts have other symbols.[2]

Statutes cited should contain at least the name of the jurisdiction (Federal, state, or local), the date of the law, and the chapter number. The "Adamson Law," for example, may technically be referred to as listed below.[3] Unless the writer has assured himself that a short form is an accepted designation, the reference should, in case of doubt, err on the side of completeness of detail.

Communications, if official and public, are cited with the exact name and title of the person, the nature of his communication (such as a letter to the writer, general letter to the public, statement to stockholders, etc.) name and exact title of the communication, the date, and, if published in a periodical, the medium in which it is to be found. If the communication is confidential with regard to the identity of the writer, a reference to the source of information is permissible by some general designation as "an

[1] *Hammer v. Dagenhart*, 247 U.S. 251 (1918).

[2] Those unfamiliar with legal terminology and methods of citation but engaged in a study requiring frequent legal reference may derive aid from a comprehensive discussion on "The Use of a Law Library," which is Chap. IX in Walter E. Spahr and Rinehart J. Swenson's, *Methods and Status of Scientific Research* (New York, Harper & Brothers, 1930).

[3] United States Laws, 1916, Chap. 436.

individual who is thoroughly familiar with the situation."

Repetition of citations must be handled in special ways. If the writer has occasion to cite the same book again *immediately* after the first citation and *on the same page*, it is not necessary to repeat the full title. One may dispense with the name of the author, using only *Ibid.* (for *Ibidem*, Latin, denoting "in the same place"), and the page numbers. It is to be noted that the term is to be underscored, which is the equivalent of italics used in print. If, however, other citations intervene on the same page, or the book is cited again within a few pages and memory of it is fresh, one should cite the name, followed by *op. cit.*, also underscored (this being an abbreviation for a Latin term, *opere citato*, meaning "in the work cited"). In this case not only the title of the book or article but even the first name or names of the author may be omitted, unless another author by that name has been cited and this would cause confusion. Also it is better not to use the *op. cit.* form of reference if the author has been cited in an isolated case so many pages away that he will not be recalled and will not easily be found by turning the pages. In such an instance it is better to repeat the full citation.

10. Tables, Graphs, and Figures

The normal paragraph and sentence structure of a report must often be supplemented by compact presentations of essential data. Among these are tables, which are numerical compilations presented in rows and columns, and graphs or charts, which are visible

presentations of the relationships of numerical facts. The term "figure" (always capitalized and abbreviated when used with a number), is a general term used to denote inserts of any character other than tables. A figure may be a chart, graph, form, blueprint, photograph, or other illustration. Tables are usually designated by numbers, arabic or roman, the latter to be preferred.

Tables and figures are excellent aids to some reports, but they are impediments in others. When well planned, they strengthen and clarify a report; when indiscriminately thrown together, they clutter the pages, interrupt continuity, bore the reader, and give an impression of padding. The writer of a report must, therefore, give careful thought to the number of tables and figures he uses, the place in which they are inserted, the form in which they are prepared, and the general effect they are producing upon the reader.

a. Relation to Reading Matter

Although it is true that occasionally the skillful presentation of material by means of a table or graph may be more interesting than reading matter on the same subject, in the vast majority of cases the opposite effect is more likely. The writer should therefore make his reading text tell the main story, using tables and figures as supporting or supplementary aids which condense valuable information.

The readability and independence of the text should be preserved by having the pages of a report complete by themselves without reference to the tables, figures, and charts. This means that the

reading text should contain the outstanding facts or aspects of a table or figure to the full degree that such description may be necessary, and the reader should not have to study the table unless it interests him. A good test as to whether this has been accomplished is for the writer to assume that the tables and figures have been lost, and to see whether they would be absolutely necessary for a person who wishes to get the main points of the report without them. On the other hand, no table or other exhibit should be included without some explanatory matter concerning it or reference to it in the text. A possible exception is material put in that part of the appendix which is intended for optional perusal.

The number of tables and figures to be used is dictated by certain considerations of taste and expediency. The principles to be observed in this connection have been expressed so effectively in an earlier Harvard handbook on research reports that a lengthy excerpt from that guide is presented below:

> The test will be this: Does the table, or any other exhibit, placed in the body of the report, help or harm the reading of the text? The rule will be to keep the text as simple as possible—plain, straight, unadorned reading matter, with only such exhibits as assist in conveying the message more clearly or more briefly.
>
> In this test the character of the report and the known preference of readers will have material weight. Most reports are nontechnical in nature and will be read by men who do not want technicalities introduced. Under such circumstances only the minimum of essential exhibits will be placed in the body, and other tables or charts will appear

in appendices. On the other hand, a report which is technical in nature but written for a nontechnical reader, as will be the case of the typical report for an executive, may properly be divided into two parts: (1) the text, or body, which will consist of a nontechnical description of the major operations with a clear statement of the conclusions, and in which only the essential tables and charts will be placed; (2) a technical appendix, which may be longer than the nontechnical part, but in which will be placed a full technical explanation of all steps, together with all supporting tables and charts not sufficiently important to be placed in the first part.

Finally, there is the technical report written for readers who thoroughly understand the technical points and expect all exhibits, whether of major or minor importance, to be inserted at the points in the text where they apply. Even here there may be danger of so encumbering the reading matter with exhibits that the continuity will become obscured. If this be true, the less important exhibits should be placed in an appendix, with textual references or suitable footnote references to the appendix. . . .

A technical appendix may include a complete discussion of a major table or graph placed in the body of the report and covered in the text by brief, though definite, statements about its purpose, use and the conclusions drawn from it. Whatever may be the plan of the report, each exhibit should be explained and its significance shown. If an exhibit will not lend itself to this kind of treatment, it is safe to say that it adds nothing to the report, and should, therefore, be eliminated.[1]

[1] NEIL H. BORDEN and CHARLES A. GLOVER, *Suggestions on Report Writing*, a publication of Harvard University, Graduate School of Business Administration, 1925, pp. 70–73. (Out of print.)

It is often found convenient to have tables, charts, and figures on separate pages, away from the reading matter. One of the reasons is that if a table or graph is part of a page of text, each time the text is changed it becomes necessary to retype the figures, causing extra work and introducing considerable likelihood of error. Moreover, the space on a page may not allow enough room for the table to be inserted and there will be a tendency for the typist to spoil its effect by skimping or to divide the table over two pages in a way that may cause confusion. But short tables or small exhibits may be conveniently put in the text.

Large inserts, such as charts and graphs, in typewritten reports, should normally be put as left-hand pages facing the copy to which reference is made. This means that they will be bound from the right-hand margin, and they should therefore be planned accordingly. Some writers prefer to put all the tables and charts together at the end. If these are not important in the text, this may be done; but generally it seems wise to have the particularly important inserts scattered throughout the manuscript, where no extra effort is required to refer to them.

b. Labeling of Tables and Figures

A table or figure should be labeled with as complete and specific information as possible concerning its purpose, nature, and relationship to other tables. Tables should be numbered consecutively in roman numerals, at the top, to be followed on the same line directly by a complete title, also in capitals, answering the questions: *What? Where? When?* An exam-

ple would be, TABLE VI. ANNUAL PRODUCTION OF PIG IRON IN THE UNITED STATES, 1916–1936. A subtitle, if any, should be put on the next line, with only the first letters capitalized. The columns in tables should be labeled so specifically that any table can stand by itself, divorced from the text. Totals and subtotals should be checked rigorously, so that the reader may use them as authoritative material. To avoid confusion, figures should be designated by capital letters, *viz.*, Fig. *A*, Fig. *B*, etc., thus constituting a separate series from the tables, numbered usually in roman numerals. Figures and tables put in the appendix are to be designated in the form indicated in a later section dealing with the appendix.

c. Construction of Tables

A table need not be dull or forbidding in appearance. Much depends upon the skill used in simplifying the display. By a psychological arrangement of the material it is often possible to draw the reader's attention to significant parts. For example, in a series of facts which give actual statistics for the years 1890–1936, it may be preferable to begin at the top with the year 1936, so that the reader may see it first. When the figures for alternate years would be adequate, this would shorten the table.

In some instances, when the details of any one year are not of great consequence, they may be eliminated in favor of five-year averages, such as 1890–1894, 1895–1899, etc., thus condensing the table in such a way as to show much more effectively the main points

which the writer is attempting to indicate. When the details of a complicated table are not an essential part of the discussion but are supplied chiefly for reference, they may be reserved for the appendix, and a popularized abstract of the high spots prepared in a smaller table for insertion in the reading text. Thus the table shown to the reader will have more interest, clearness, and unity.

Tables based on figures obtained in any other manner than by personal knowledge and computation should show the origin of the facts. If the source for all the data is a recognized authority and may be referred to briefly in a line or two, it may be put at the top, after the title or subtitle. But if many sources have been used and explanatory statements are necessary, they should be put in footnotes at the bottom of the table. Such footnotes should not be designated by a number, but by a letter or by a symbol, such as an asterisk or a dagger, since in typing a manuscript confusion is likely to result when numbers are introduced.

d. Charts

Charts are often helpful in bringing out the significant facts of a table, and in revealing trends and relationships which would otherwise escape observation. One should not, however, go to the trouble of making a graph when the proper visual arrangement of the figures themselves in a table would make the important points obvious. Likewise, a graph should not be so complicated that almost as much time is required to understand the facts by the use of the

graph as would be necessary if a good table were presented.

The figures on which a chart or graph is based should be supplied where technically necessary, but if merely a principle or trend is to be shown and the detailed figures are not important, the statistics need not be given. Sources of data on which a chart is based should, however, be clear. If they are not based on a table given in the report, and the direct relationship to other data is not apparent, subtitles or footnotes should indicate the sources definitely.

The use of charts requires attention to many technical details. The type of chart to be used is a matter requiring background acquired in the study of forms of graphic presentation. The value of a chart or other exhibit is greatly enhanced by attractive appearance, including careful lettering; its intrinsic value is marred by slipshod details or evidences of incompetence in the technical aspects.[1]

[1] The following two books are among those which may be recommended in this connection: Herbert Arkin and Raymond L. Colton, *Graphs, How to Make and Use Them* (New York, Harper & Brothers, 1936), 224 pp., and John R. Riggleman, *Graphic Methods for Presenting Business Statistics* (New York, McGraw-Hill Book Company, Inc., 1936), 259 pp.

CHAPTER VI

ANATOMY OF A REPORT

The various sections of a report should be combined in the proper sequence required for an orderly presentation. In the following pages the principal parts of a manuscript are discussed from the viewpoint of completeness and balance of material.

1. Cover

A cover page of more durable paper than the pages of the manuscript is an excellent aid in preserving the neat initial appearance of the typewritten or mimeographed report. A cover of cardboard protects the edges of the sheets it encloses, but any cover will serve, at the least, to keep the typed sheets from becoming soiled. Therefore, even in a small manuscript of a few pages, the top sheet should ordinarily be only a title-page, and the text of the manuscript itself should begin on an inside page. Likewise it is desirable to have a blank back page.

2. Title-page

The presentation of a good title-page involves two types of problems: first, the kind of information it displays and, second, the visual impression it makes.

The information which a title-page should contain usually includes the following, and in the order given:

(1) the title of the report or manuscript; (2) a subtitle, when desirable, for a subtitle may amplify the title or heading and make its scope clearer to the reader; (3) in some cases an explanatory clause or short paragraph indicating how the report was prepared and for whom, or under whose auspices; (4) the full name of the writer with identifying data; (5) the date of the presentation of the report.

The visual impression must be considered with reference to the amount of material to be put on the page and similar matters. In general, balance is the most important principle to observe. There should be ample space at the top, so as to give the title (and subtitles, if any) as much prominence and importance as possible. The center of the page or part just below can then be used for the explanatory material, and the lower part of the page for the rest of the information.

As an illustration, in a thesis written for the Amos Tuck School the title-page is required to contain, in capitals, the following information: At top of page, title of thesis; subtitle, if any, immediately below the title; at middle of page, the words "A thesis presented to the Faculty of the Amos Tuck School of Administration and Finance in partial fulfillment of the requirements for the degree of Master of Commercial Science." Below this the word "By," followed by full name of student, his academic degree, the college from which he was graduated, and year of graduation; near bottom of page, the words "Supervised by" (name of instructor and his exact title); and at bottom of page the date of submission.

3. First Few Pages and Foreword

First impressions in a report count heavily. If the reader finds pleasure and stimulation in the first few pages and is given a feeling of enthusiasm for the writer, an initial good will is created which will carry the reader a considerable distance into the manuscript. But if the first few pages arouse antagonism, impair confidence, or create an impression of dullness, this early prejudice will linger until especially convincing material has been read. Special care, therefore, should be taken with the "front pages," particularly with the foreword and the first chapter.

An explanatory foreword or preface is not essential, but it may be found a means of eliciting the reader's sympathetic interest. It is especially useful when there are significant points which must be explained in order to avoid misunderstanding. It may also be helpful in giving specific acknowledgment of cooperation. A foreword should be short, rarely exceeding two pages, and should be the most carefully written part of a manuscript.

The beginning of a report should give some statement or indication of the problem under investigation and the purpose of the study. It should not begin merely with a series of facts or details having no meaning to the reader. Whether the explanation is to be given in the foreword or in the introductory chapter is a matter for the individual writer to decide.

4. Table of Contents

If one has chosen the chapter headings well and has included many subtitles, the table of contents

serves as a headline display of the topics discussed. The subheadings greatly increase the usefulness of the table of contents, for the latter presents evidence of the logical arrangement of one's material and is an effective means of interesting readers. Suggestions with regard to the kinds of titles to use are given in a later section.

For the purpose of clarifying relationships of titles these should be numbered, both in the text and in the table of contents. The latter should list every subtitle in the text and in wording identical with these subtitles. The page reference for each title should normally be given.

In numbering the titles a minor point of form to be borne in mind is that numbers vary in size when put in roman type. An example is the contrast between I and VIII. For this reason, to avoid a ragged left margin, it is advisable that all roman numerals should begin from the same straight line.

The question arises whether, following the table of contents, there should be added a list of statistical tables, and also a list of figures and charts. The answer depends upon both the number and the importance of these inserts. Unless lists of this sort add materially to the kind of information the reader may need, or serve as a useful reference, they should be omitted. Such lists are rarely necessary when there are less than ten tables, or when the figures included are not of special importance.

5. Introductory Chapter

An introductory chapter is optional. If it can be made interesting and contains information essential as background, it should be included. The writer should avoid the academic tendency of introducing a wearisome historical review which may have no particular importance. Sometimes it is possible to plunge the reader into the subject, explaining the necessary points in the course of the text, and thus to hold his attention from the start.

A good introductory chapter should enlarge the reader's perspective and add to the prestige of the subject. Often a terse page or short analysis may point out the broad national question of which the subject investigated may be a part, and thus indicate the degree to which the study may contribute to the understanding of the larger problem. It may also be appropriate to explain at the start the relation of the investigation to similar studies, indicating how it differs in scope, method, or purpose from available material.

6. Suitable Number of Chapters

There should be as many chapters as there are main divisions of the subject. Chapters should not be so short as to make the reader critical of the material or too long to retain unity. Excessively short chapters tend to make the reader expect too much in content. At the end of a chapter the rest of the page should be left blank and the new chapter begun directly on the next sheet. A special blank

sheet to indicate a chapter separation is usually too dressy and is not necessary.

7. Titles and Subtitles

Titles have many important values in a manuscript. It is exceedingly helpful to most readers to be able to skim over a manuscript and have the eye attracted by attractive, but dignified, titles which reveal the range of content. Titles and subtitles are thus excellent guide posts to the parts of special interest to the reader and serve as stimuli to further reading. They also aid the writer to determine whether the material within a section deals in a unified way with the subject. Their relative relationship discloses the extent to which the material is in proper sequence. When titles are combined in a table of contents, either for a chapter or for a manuscript as a whole, they tend to reveal the presence or absence of logical organization.

The suggestions which follow are intended to provide standards of good titles and thus to be of aid in their effective use.

Titles, subtitles, and other headings should be supplementary to the text, not a part of it. It should be possible to remove them all without loss of definiteness in the sentence before or after the point at which they are located. This means that reference to the title should not be relied upon for clearness in the closing sentence of a previous paragraph or in the opening sentence of the one that follows. This gives a maximum flexibility in the revision of subtitles and permits their omission without text revisions.

Titles should be alive. They should not be dull, technical names for sections, or a mere means of separating divisions of a chapter. In order to arouse interest, a title should have significance and be adopted with the definite purpose of producing a certain effect on the reader's mind. Instead of making merely academic subdivisions, the aim should be to suggest what is coming or to arouse interest in the development.

To invent effective titles requires study and patience. The art can be acquired in part by practice in carefully weighing various alternatives. In newspaper headlining, with which the average reader is most familiar, titles are considered so important in arousing interest that specialists are usually employed for this purpose and none of the other writers are allowed to insert them.

Titles should be short, but not at the expense of clearness and definiteness. If the title is long enough to fill a whole line, it would be preferable to type it in two lines, single-space, so as to secure the visual effect of white spaces on each side.

Titles should be specific with respect to the problem under consideration. For example, "Money Prices and Bond Prices" was a general title used in one report when the actual topic discussed was "Effect of Savings Bank Rates on Investments."

Titles should be uniform in structure. If the participial form of a verb is used in some of the subtitles in a series, other titles should, where feasible, correspond. To illustrate, "Investing the Bonds,"

should be followed not by "Check on the Bonds" but by "Checking the Bonds." Another way to secure uniformity is to see that a series of titles does not vary from singular to plural, or vice versa, without good reason. As an illustration, the paragraphs in the present section begin with the plural of the word "Titles," uniformly. If in some cases a paragraph were to begin with "A title should" and in another case to begin with "Titles," there would be a dissimilarity which would affect the reader unfavorably. Uniformity is, however, a general standard. It is not an absolute rule, provided that the differences in titles can be justified.

Titles should have logical sequence. One way by which titles may have logical sequence and may be made to conform to other standards mentioned is to keep a current table of contents as one writes, and to scan this frequently in order to improve the titles individually and as a group.

Titles of sections should normally be center headings rather than side headings. Only the title of the report itself and the titles of the chapters should be typed entirely in capitals. By having all other titles capitalized only in the first letters of the principal words, the distinction in importance of subdivisions is best recognized. A period is not necessary at the end of a title but if the title is in the form of an interrogation, a question mark is required.

In inserting titles, it is also well to type them three spaces from the material above but only two from the text below. This method displays the titles

better, separating them from the reading matter to which they do not belong, and bringing them a little closer to the section to which they refer. Titles of chapters should be about two inches from the top of a page and an inch above other titles or reading matter.

Underscoring titles is optional but not favored. Generally speaking the writer should try to do without this for certain technical reasons: (1) changes in title are more difficult to make when underscored because the underscoring cuts into the paper and is not easy to erase; (2) the black line sometimes occurs in the wrong place and spoils the visual effect; (3) underscoring has a specific significance for a printer, *viz.*, it means "put in italics," and if italics are not desired when a manuscript is submitted for publication, erasures will be necessary.

Nevertheless, some manuscripts are very much improved by underscoring of titles. The best policy is for the writer not to underscore any of his titles until he is completely ready to have his manuscript retyped for final submission. At that time he may experiment with a few pages and make comparisons which will aid him to decide whether he wishes his titles underscored or not.

8. Summary Chapter

A summary is an excellent way to conclude a report, provided one has a proper appreciation of what a summary is and how it should be prepared. The ideal summary not only reviews the outstanding facts, but gives a keener and more comprehensive

view of these facts and the conclusions reached from them than hitherto obtained. A summary should not contain new material, unless incidentally, nor should it be a mere presentation of previous material. It is a broad retrospect, which puts together in a proper balance the main findings and, particularly, the recommendations. The concluding chapter, because of its influence on the reader, should therefore be especially well written.

The summary generally comes at the end. In some instances, however, an effective use of the summary has been made by putting it at the beginning as the introductory chapter. In other cases a few of the significant excerpts from the summary have been put in the introductory chapter.

9. Appendix

All materials not essential to the understanding of the text, but of value or interest to the reader or necessary as supporting evidence, are to be put in the appendix. This may include tables from which charts or graphs are compiled, original data, exhibits, forms, resolutions, lengthy legal citations, historical material, and special summaries. Each section of the appendix, whether a table or figure, should be designated by a letter, such as Appendix *A*, Appendix *B*, Appendix *C*, and, if possible, should be given a title.

10. Bibliography and General Sources

A section near the end of the study should state the sources of information used. Usually this will include a bibliography of books and magazines found

helpful, and these should be listed in the form suggested in the previous chapter. Unless the report is intended to be a mere compilation of references, the writer who has not used a particular report and is not familiar with it through first-hand knowledge should not cite it in his bibliography.

To make a bibliography more useful to the reader, it should be annotated; that is, the writer should add a descriptive line or two, or perhaps even a paragraph, following the citation, giving the nature of the material the book contains. This may be done for the outstanding works, or for all. Annotation adds greatly to the helpfulness of the report to the person in whom interest has been aroused. An example of a short, annotated bibliography, is given near the end of the present manual.

The individuals or associations consulted, if recognized authorities, may sometimes be mentioned, thus giving a fairly complete picture of the sources of information.

11. Index

An index is necessary in a book and in particularly long reports. In a typewritten report of average size, a table of contents is sufficient, but the desirability of good organization and an adequate number of subheads in this instance is obvious.

If an index is to be used, it should be a complete guide to topics, names, authors, and material included in the text, and be prepared in minute detail. A good index is one which enables him who uses the book to

locate readily the subject or item which he seeks. It is usually best for an author to make his own index.

The style of index usually favored is that of two columns to the page, as illustrated at the end of the present manual. Single and double indentions differentiate the subdivisions of items listed, and variations of type and alphabetizing make it easy to recognize main entries, subentries, and cross references. The McGraw-Hill Book Company, in a booklet of suggestions privately issued to its authors, which is quoted at length in Chapter VIII, states:

Serious objection is properly made to numerous page references under a single heading. For example, in a book on petroleum, references to every page on which the word "petroleum" appears would obviously be valueless. The solution lies in concise qualifications of the main titles to reduce to the minimum the actual number of page references opposite each heading.

In the preparation of an index, the use of 3- by 5-inch cards is advisable. This enables the author to arrange his subject matter alphabetically and to assemble his duplicate references easily. The single and double indentions should be marked on these cards, and the guide cards struck out when indentions are indicated. For single indentions use this mark □. For double indentions use □□. If, after the cards are so arranged and marked, it is possible for the author to have the index typewritten in manuscript form, the risk of mixing and losing cards is minimized and the work of the printer is facilitated.

The absence of an index in a book or report which has a large and technical content and is intended for general circulation is one of the most irritating features of some current published material. The omission

greatly detracts from the usefulness of the book or report, and one may well share the prejudice of a widely read periodical in New York City which at one time published regularly the following notice regarding books which were submitted to it for review and found to be without indexes: "The publisher and the author did not think well enough of this book to supply it with a suitable index. We feel, therefore, that it is hardly worthy of a review in our columns."

CHAPTER VII

GUARDING AGAINST ERROR

Accuracy is the *sine qua non* of research reports. It requires that painstaking attitude by which attention is given to every detail. The result can be secured only by checking at every stage in which error might be introduced. If the facts are properly laid before the reader, he is not at the mercy of the writer and he can find a report of value even though he disagrees with the inferences, conclusions, or recommendations.

The following three suggestions may help a conscientious research worker to produce a manuscript free from error.

1. Advance Criticism

When a manuscript is completed, except for possible changes in details of style or organization, the accuracy of its material should be completely checked. It may be desirable to send to various people copies of those sections of the report in which they have aided and to request their comments. In addition, the cooperation of one or more persons should be sought in reading the manuscript as a whole.

Reviewers of a manuscript before the final copy is typed are particularly helpful in sensing subtleties in the general tone or attitude of the report which may

have inadvertently resulted. Requests for such aid should not be limited to persons who are specialists in the field, for friends who may not be familiar with the subject at all may, as general readers, point out what appear to them to be inconsistent or cloudy passages and thus promote the readability and clarity of the report.

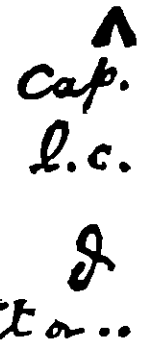
Such a procedure would be following out the excellent precept that *all adverse criticism of a manuscript should come before publication—not after.* The writer who has pride in his work does not like to see his errors permanently engraved in a bound manuscript or document. He may avoid such humiliation by ironing out all doubtful points with advisers and informants before his report is presented in final form.

2. Directions to Typist

Sometimes the manuscript may be correct up to the stage when actually submitted for final typing, yet errors may occur because too great reliance is placed upon the stenographer. Also, an otherwise well organized manuscript is occasionally spoiled in visual effect by lack of judgment shown by the typist. It is wise, therefore, if the report is not in exactly the form desired, to give complete instructions concerning every detail, such as place of subheadings, method of writing footnotes, etc., and to be sure that other markings of the manuscript are clear. Even such small points as the decision on abbreviations should be included in the instructions.

Some of the generally accepted symbols used in printing offices are given in the next chapter. For

typed manuscripts it is not necessary to know all these symbols, especially since stenographers may not know anything about them. Some of the signs which will be found particularly useful as abbreviations, however, are:



Caret, meaning "insert here."

Cap. meaning, "type in all capitals."

l.c. lower case, reduce from capitals to ordinary letters.

which means "delete," or "take out."

stet ... which means "let it stand," or "do not take out, although it is marked out." A line of dots or small dashes under the part to be retained is desirable when only part of the material marked out is to be retained.

A circle around an abbreviated word means, "do not abbreviate;" or around a number means, "write out the number."

Paragraph.

No paragraph.

Close up.

Period.

Quotation.

Transpose.

3. Proofreading of Final Copy

The writer, and not the typist, is responsible for the correctness and appearance of the manuscript. It is futile to explain that someone else made the errors. Everything in a manuscript, from the appearance of the front page to the punctuation of the last, should be examined with meticulous care by the writer. He will be amply rewarded for this con-

scientiousness because, in the vast majority of cases, he will find a surprising number of small errors, many of which were not in the original drafts.

A suggestion of value here would be that, one should check against the original sources of the material, not against previous drafts of the manuscript. To illustrate, if a certain book has been cited, the final manuscript should be checked against the book itself, and not against a typewritten copy of the citation; if a law is cited, it should be checked against the official statute. It is also important to take particular note of the conspicuous features of a report, such as the title-page, the chapter headings, and the titles and numbers of charts, since their prominence is often a reason why they are neglected.

CHAPTER VIII

SUBMISSION TO A PRINTER OR PUBLISHER

Various special problems are encountered by the author whose manuscript, after being typewritten or mimeographed, is submitted to a printer for publication. When this is the case, the author will need to show discernment in selecting or approving format and typography and in guarding against various eventualities to be considered in this chapter.

1. A Clear Manuscript Protected by Duplicate

Perhaps the first injunction is to give the printer a clear, "foolproof" manuscript that does not enforce numerous independent judgments on the typesetter. The McGraw-Hill Book Company requests its authors to observe the following:

Manuscript should be typewritten on one side of white paper, uniform in size, and preferably 8½ by 11 inches. A paper of reasonable thickness and toughness is desirable. Thin, "manifold" paper should not be used for the publisher's copy.

The same spacing should be used as far as practicable on each sheet to facilitate estimates as to the number of words in the complete manuscript. A margin of at least an inch should be left at top, bottom, and left-hand side. Single spacing should be avoided.

A carbon copy should invariably be made and retained by the author, both for his reference and to protect him against possible loss of the original. The original, or ribbon, copy should be sent to the publisher.

2. Revisions Suggested by Reading Galley Proof

Even when the manuscript submitted to the publishers is a clear and finished copy, embodying the author's most careful style, he often will be surprised, on receiving galley proof, to see how many revisions occur to him in the process of reading proof. The writer should be aware of the reasons for this. It may be due to the fact that he has not seen his manuscript for weeks or months and some of the expressions which had seemed satisfactory to him will be seen with a fresh eye. Other reasons for changes will be the fact that some errors and infelicities of expression had previously not been noticed but are revealed by the extra readings. In addition errors may have been introduced by the printers themselves.

Aside from these reasons, however, most writers discover in their experience that an expression, a sentence, or a paragraph looks different on a compact printed page from its former appearance on the typewritten sheet. As a result the writer usually finds more places needing revision than he would have seen otherwise.

The author should realize under these circumstances that the material sent back to the printer represents his more mature judgment, and therefore he should not be bound by the ideas he had when he

wrote the manuscript. After all, the report is going to the reader in printed form and must look well in print. Therefore, if important changes require revision in the proof, he should make such alterations. But the possibility of changes in the proof should not be a reason for submitting an imperfect manuscript, for galley changes are expensive and are often chargeable to the author in whole or in part.

3. Relations with Publisher

When a report or book is put out by a well established publishing agency, such as a book company, it will have been reviewed for style carefully by an editorial assistant before being sent to the printer, and probably have been proofread meticulously in the printing office. Nevertheless neither of these two checks should be relied upon exclusively by an author. Through error or misunderstanding these readers may have allowed mistakes to creep into the text.

Aside from this obvious point, however, the reason why the author should see the original manuscript when reading galley proof is that he may note the blue pencil revisions made by the editorial assistant. Normally they will be improvements. In some cases they may introduce variations to which the author will be greatly opposed. As an example, in one instance an editorial writer, or the printing office, substituted for the normal spelling of the word "technique" the unusual form "technic." Through inadvertence this change had not been made in all cases. The author was well advised in that case in substituting the normal spelling of the word, but in

order to do so he had to scan some 450 pages carefully, although he had already read the galley proof, in order to obtain a consistent use of the alternative form.

On matters of style the author should give most respectful consideration to the judgment of a publishing concern because of its experience in these things. Nevertheless he should not, through neglect or reticence, allow the manuscript to be published in any particular which would impair its effectiveness or tone. A good publisher desires such cooperation from the author. If, for example, the latter wishes to please a Negro clientele through the use of the capital "N" (as Negroes greatly prefer the word to be spelled), he should insist upon having his way. If the type or paper is not of good quality or if special pages of tables seem not to be set up in a craftsmanlike way, he should hold out for the right form.

Some of the problems which the author meets in preparing a manuscript for publication may perhaps be illustrated most concretely by instructions on "Manufacturing the Book" taken from a booklet on "Suggestions to McGraw-Hill Authors," by the McGraw-Hill Book Company, Inc., publishers of the present manual. These instructions, designed by the company for its own writers, supply important information, and the whole chapter is therefore incorporated as section 4 of this chapter, along with incidental excerpts presented here as section 5. The suggestions represent high standards of book publication.

4. Manufacturing the Book

a. Sample Pages

Before the manuscript has been prepared in our offices for the printer, we generally ask the printer to set a few representative pages of the manuscript and submit them to us in page proof. These are in turn submitted to the author in order that he may study the typography and inform us if we have in any way misunderstood his manuscript and the marks on it. This step is, of course, dispensed with if there are no special problems or if a definite agreement has been reached in advance as to the typographical details of the book.

When the author has looked over these first proofs, with the idea not of proofreading but of determining upon the style, we proceed with the copy preparation.

b. Galley Proofs

These proofs in duplicate (one set is for the author's files) are first submitted to the author, and accompanying these are cut dummies which show the illustrations reproduced as they will appear in the book.

Galley proofs should be read with extreme care, and, wherever possible, the author should call in some associate or assistant to read them as well, for it is our experience that the author who has spent a great deal of time in the preparation of a manuscript often reads with his memory rather than with his eyes and passes the most obvious errors.

When the author returns the galleys with his corrections marked thereon, he should at the same time return the original manuscript. At this time, also, figure numbers and captions should be added to the proofs of illustrations, and an indication should be made by number, in the margin of the galleys, of the approximate location of the illustrations.

Illustrations are inserted in the pages by the printer as near the point of reference as the limitations of make-up will permit. If, as happens in rare cases, an illustration must be inserted in a given paragraph, this should be clearly indicated on the galley proof.

c. Page Proofs

The printer then proceeds to make up the book into pages, and two copies of page proofs are forwarded to the author. These, again, should be read carefully to make sure that all corrections that were indicated in the galleys have been properly made, and returned to us for final casting into plates. Changes other than typographical corrections and additions that involve the overrunning and rearranging of lines or pages often mean the remake-up of many pages of type and an expense that is usually out of all proportion to the good accomplished. Corrections and changes should, therefore, always be made in the galley proofs.

One set of galley and one set of page proofs which the author receives are marked with the printer's corrections, generally in green or red ink. The set containing the printer's marks should be returned with the author's corrections added.

The duplicate set of page proofs should be retained by the author for use in preparing his index, in order that the copy for the index may be forwarded as soon after the final shipment of page proofs as possible.

d. Answering Queries

Frequently the proofreaders query certain points in the manuscript on the galley or page proofs. It is important that the author note these queries in all cases and indicate his decision regarding the questions so raised.

e. Proofreading

Every effort is made to submit proofs that follow closely the original copy, but the experienced author knows that he himself cannot exercise too much care in proofreading. The amount of damage that has been done to the reputation and sales of many otherwise excellent books by carelessness in proofreading would astound the inexperienced author.

For the guidance of those who are inexperienced in proofreading, a reproduction is provided of a sheet showing the ordinary proofreading marks. It is helpful if the author follows this general system in marking his proofs. It is essential that the corrections be clearly indicated as in examples shown on pages 128–129.

f. Author's Corrections

No problem in the publishing of books gives the publisher and the author more trouble than the question of author's corrections. The term "author's corrections" covers, technically, changes made in

content, arrangement, or typographical style, or additions to the manuscript, after the type has been set.

The publisher, to protect himself against the author who practically rewrites his manuscript after it has been set up in type, usually provides in his contract that corrections in excess of a certain percentage of the cost of composition shall be charged to, and paid for, by the author. The printer makes a careful distinction between printer's corrections and author's corrections. Corrections marked in galley and page proofs of a book where the printer has not followed copy are printer's corrections. Author's corrections are changes and additions made in the proof. Obviously, where these changes make a distinct improvement in the text—that is, a better book—the publisher takes a sympathetic attitude; but when the item of author's corrections runs to a total of twenty-five or fifty per cent or more of the cost of setting up the book, there is clear indication that the author did not complete his book in the manuscript but in the proof.

The provision that corrections in excess of a given percentage shall be charged to the author is often misunderstood. A change to the extent of ten per cent of the text in a galley or page involves a total cost far in excess of ten per cent of the original cost of composition. The original composition is machine work; the corrections are a combination of machine and time-consuming handwork.

For a general rule, it should be kept in mind that corrections in the galley proofs cost much less than corrections in the page proofs where remake-up of

Proofreader's Marks

∧	Insert the letter, word or punctuation mark indicated.
⊙	Insert or substitute a period at the place indicated.
✓	Insert an apostrophe.
✓✓	Insert quotation marks.
=/	Insert a hyphen.
#	Make a space at the point indicated.
⁀	Close up or join separated letters or words.
ℓ	Delete or take out.
l.c.	Change from capital to small letter.
Cap.	Change to capital letter.
s.c	Change to small caps.
ital	Change to italics.
rom.	Change to roman type.
wf.	Wrong font letter.
tr	Transpose.
⌐¬	Words or letters inclosed by line should change places.
¶	Paragraph here.
No ¶	No paragraph here.
stet or ...	Restore word or sentence mistakenly marked out.
? or Qy.	Is this right?
x	Broken letter.
⌐	Move to left.
¬	Move to right.
⌣	Push down space.

In preparing copy for the printer the writer should underline:
One line, words to be put in *italics*.
Two lines, words to be put in SMALL CAPS.
Three lines, words to be put in LARGE CAPS
Wavy lines (~~~~~), words to be put in **bold-face** type.

A Corrected Proof Sheet

LINCOLNS GETTYSBURG ADDRESS.

Fourscore and seven years ago our fathers brought forth upon this Continent a new nation, conceived in Liberty, and dedicated to the proposition that all men are created equal. Now we are engaged in a great civil war, testing whether that nation, or any so conceived and so dedicated, can long endure. We are met on a great battle field of that war. We are met to dedicate a portion of it as the ~~last~~ resting-place of those who here gave their live, that that nation ~~might live~~ might live. It is altogether fitting and proper that we should do this.

But in a larger sense we cannot dedicate, we can not consecrate, we cannot hallow this *ground*. The brave men, living and dead, who strugled here have consecrated it far above our power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here. It is for us, the living, rather to be here dedicated to the unfinished work that they have thus far so nobly carried on. It is rather for us to be here dedicated to the great task remaining before us, that from these honored dead we take increased Devotion to the cause for which they here gave the last full measure of devotion, that we ~~here~~ highly resolve that the dead shall not have died in vain; that the nation shall, and that government of the people, by the people, and for the people, shall not perish from the earth.

pages involving a large expense may result from the addition of a single line or even a few words. But it is most important of all for the author to realize that every correction made after the manuscript has been set up in type is time-consuming and expensive, and that such delay and expense are reduced to a minimum when the author submits a clean, carefully prepared manuscript that embodies his final judgment of content and style.

5. Some Suggestions Concerning Illustrations

Drawings and photographs should not be inserted in the manuscript because illustrations are sent to the engraver at the same time that the manuscript is sent to the printer. Small drawings should be pasted on separate sheets of paper, one drawing to the sheet; but large drawings and photographs should not be treated in this manner. Mounted photographs are entirely satisfactory, but unmounted photographs should not be pasted on sheets or mounted, except by an expert. All illustrations should be referred to by figure numbers in the text and numbered correspondingly for identification on the copy. Illustrations should be numbered consecutively from the beginning to the end of the manuscript.

Halftone illustrations can be made satisfactorily only from photographs or wash drawings. Photographs on a high-finish or glossy paper produce the best results. One cannot secure good results by making a halftone from a halftone print. A halftone engraving is photographed through a screen, and when one undertakes to reproduce a halftone from a halftone

print one throws one screen upon the other. In rare cases, passable results can be obtained in this way, but such copy should be used most sparingly.

Wherever possible, illustrations to occupy a full page should stand vertically on the page. This is obviously more satisfactory to the user of the book.

Folded plates and charts should be avoided as far as possible, not only because they involve an unreasonable expense, but because American readers, at least, do not like them.

BIBLIOGRAPHY

JOHN C. ALMACK, *Research and Thesis Writing* (Boston, Houghton Mifflin Company, 1930), 310 pp.

A textbook on the principles and technique of research for the professional research worker or the advanced graduate student.

WARD G. REEDER, *How to Write a Thesis* (Bloomington, Ill., Public School Publishing Company, 1925), 136 pp.

A helpful little book, well written and containing many practical suggestions concerning research work and the preparation of manuscripts.

ALTA G. SAUNDERS and CHESTER R. ANDERSON, *Business Reports: Investigation and Presentation* (New York, McGraw-Hill Book Company, Inc., 1929), 411 pp.

A comprehensive guide to the types of reports used in business concerns, with special emphasis on the methods of preparation and presentation which will improve clearness and persuasiveness. A large number of business executives, mentioned in pages of acknowledgments, have cooperated in supplying examples and advice used in this book.

WALTER E. SPAHR and RINEHART J. SWENSON, *Methods and Status of Scientific Research* (New York, Harper & Brothers, 1930), 533 pp.

An encyclopaedic book on research technique, with particular application to the social sciences. It is designed for the graduate student and the professional research worker and will be found useful as a reference on points not covered in the volumes already listed.

SIDNEY and BEATRICE WEBB, *Methods of Social Study* (London, Longmans, Green & Company, 1932), 263 pp.

Two research workers and students, who have written books internationally known, condense their experience into a manual

dealing with such subjects as How to Study Social Facts, The Art of Note-taking, The Written Word, The Spoken Word, The Use of Statistics, Verification, and Publication.

THOMAS R. AGG and WALTER L. FOSTER, *The Preparation of Engineering Reports* (New York, McGraw-Hill Book Company, Inc., 1935), 192 pp.

A specialized manual for use by technical men in the transmission of engineering information, with many helpful points on general matters of style.

W. C. SCHLUTER, *How to Do Research Work* (New York, Prentice-Hall, Inc., 1926), 137 pp.

A handbook for the research worker, outlining logical procedures and helpful methods in research in general, but more academic in approach than the books listed above.

WILLIAM F. OGBURN and ALEXANDER GOLDENWEISER, *The Social Sciences and Their Interrelations* (Boston, Houghton Mifflin Company, 1927), 506 pp.

A book of thirty-four chapters by outstanding authorities in the field of the social sciences, prepared for the purpose of presenting "an integral picture of the present interrelations of the social sciences, with particular reference to the United States."

MEREDITH PUBLISHING COMPANY, *Standards of Research* (published by the Company at Des Moines, Iowa, 1929), 87 pp.

A pamphlet prepared by the company publishing *Better Homes and Gardens* and *Successful Farming*, in connection with its work of studying markets and marketing methods of various industries for the benefit of advertisers. It is written in terse, outline form, and is specially suggestive concerning the conduct of marketing research.

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