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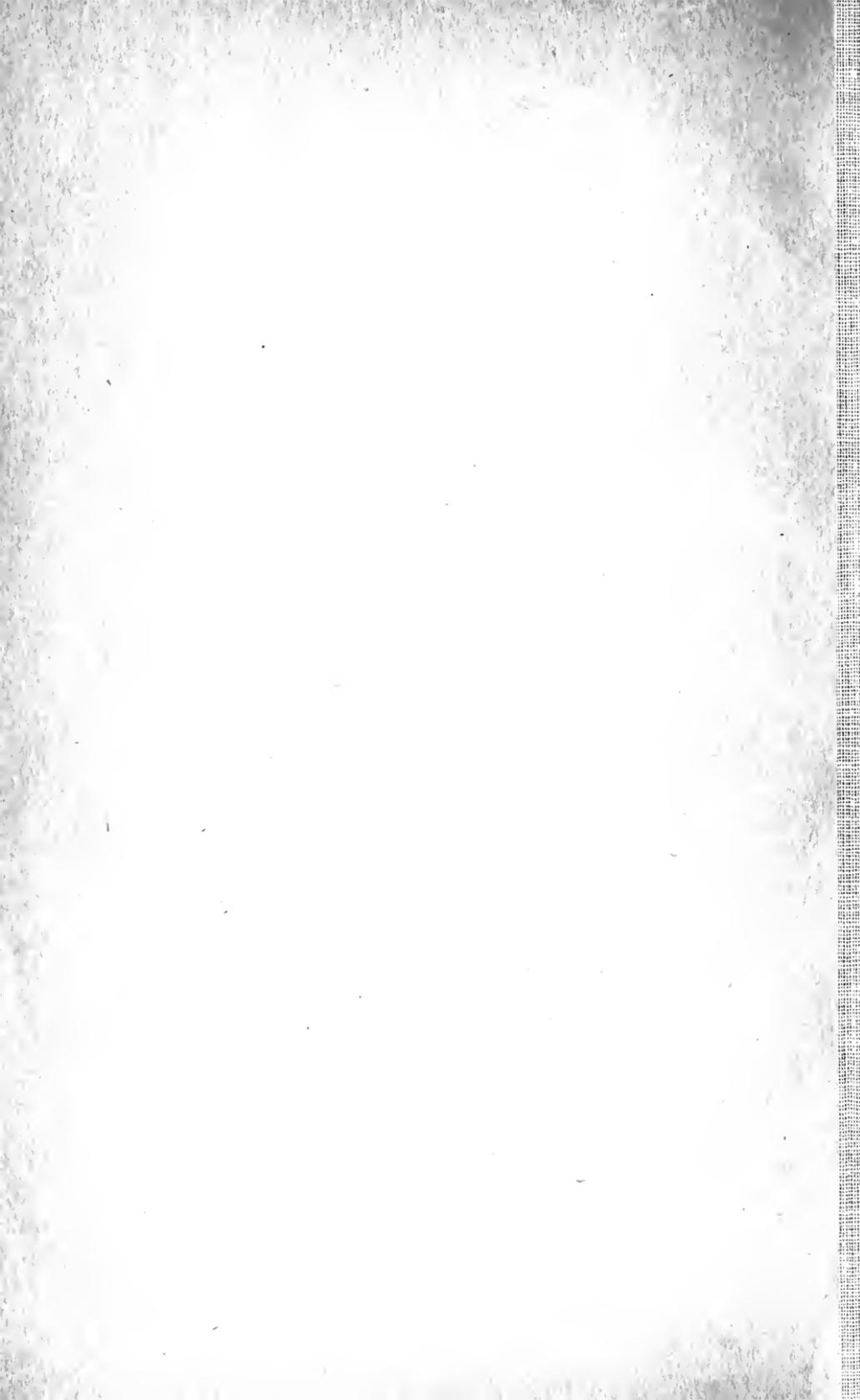
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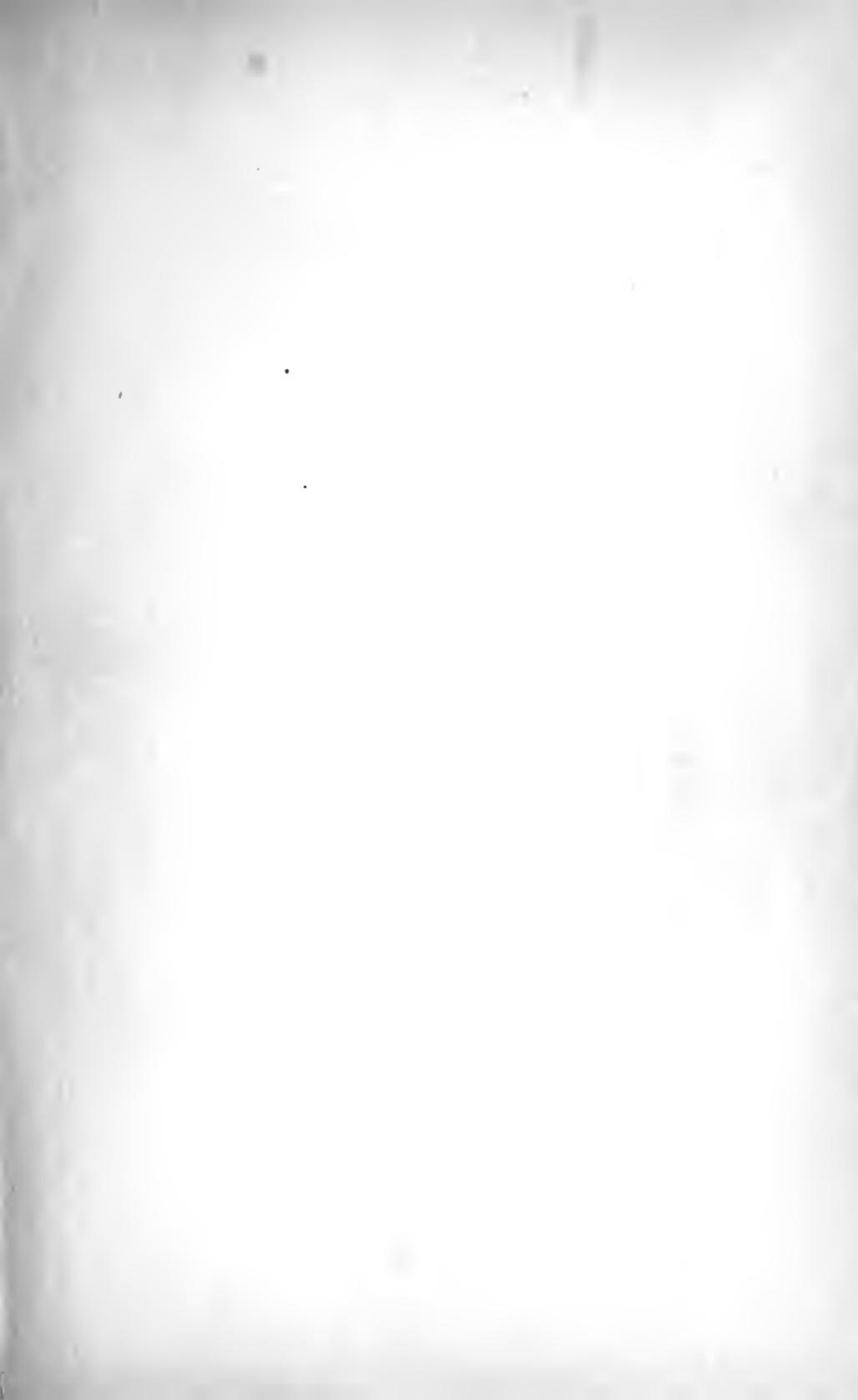
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- 1766 (Garner, Phila.): Eng., writ., accts.  
 (McCain, Phila.): surv., nav.  
 (Oliphant, Phila.): writ., arith. math.  
 (Academy, Phila.): "the languages," math., mer. accts., writ.,  
 arith.  
 (Thorne, Phila.): writ., arith., mer. accts., mens., surv., gaug.,  
 nav.  
 (Alex. Power, Phila.): Eng., writ., arith., bk-kp., geom., mens.,  
 trig., surv., nav., geog., astr., alg., conic sections, fluctions.  
 (Ehrenzeller, Phila.): Ger.  
 (Webster, Phila.): geog., logic, Eng.  
 (Carroll, N. Y.): writ., arith., bk-kp., geom., alg., conic sections.
- 1767 (Griffith, Boston): writ., arith.  
 (Hughes, N. Y.): writ., arith.
- 1768 (Dayton, Newport): read., writ., arith.  
 (Lamb, N. Y.): read., writ., arith., nav.  
 (Griffith, Boston): writ., arith.
- 1769 (Dayton, Newport): read., writ., arith.
- 1770 (Pine, Phila.): writ., arith.  
 (Maguire, Phila.): read., writ., arith., accts.  
 (Stiles, Phila.): writ., arith., "&c."  
 (Oliphant, Phila.): writ., arith., math., mer. accts.  
 (Ellison, Phila.): writ., arith., nav., math.  
 (Fentham, Phila.): Fr.  
 (Thorne, Phila.): writ., arith., mer. accts., mens., gaug., surv.,  
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 (Daymon, Phila.): Fr.  
 (Ehrenzeller, Phila.): Ger.  
 (Robinson, N. Y.): bk-kp.  
 (Girault, N. Y.): Fr.

BULLETIN NO. 25

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BUREAU OF EDUCATIONAL RESEARCH  
COLLEGE OF EDUCATION

REPORTING EDUCATIONAL  
RESEARCH

By

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## PREFACE

Treatises on statistical methods, memoirs, articles, and monographs have dealt with various phases of the technique to be employed in collecting and summarizing data for the study of educational problems. Practically nothing, however, has been written on the reporting of educational research which is an important phase of an investigator's task. Although realizing that the writing of a report cannot be made a technical procedure, the Bureau of Educational Research publishes this bulletin, which may be considered a by-product of its activities, in the hope that it may render assistance to those engaging in educational research. Improvement in the reporting of educational research will in turn improve the quality of the work done.

WALTER S. MONROE, *Director.*

March 4, 1925.



# REPORTING EDUCATIONAL RESEARCH

## CHAPTER I

### INTRODUCTION

**The nature of educational research.**<sup>1</sup> "Reflective thinking" is the name given to the mental process of discovering rules and principles. Since men began to be concerned about the preparation of children for the activities of adult life, "thinkers" have been discovering from their experience and observation rules and principles relating to the learning process, the teaching process, the curriculum, the organization of a school, the preparation of teachers, and so forth. Many of these "discoveries" we now know have been faulty due to incorrect or incomplete data or to failure to think with sufficient accuracy. Recently under the name of "educational research," specific attention has been given to improving the technique of discovering knowledge about education. Particular emphasis has been placed upon collecting objective data and summarizing them by employing statistical procedures with the result that some persons appear to consider these two phases of educational research as constituting the whole of it. This is an unfortunate conception. Reflective thinking is required in the discovery of new procedures, rules and principles.

Although the authors of this bulletin are not attempting to define educational research, there is one other point which should be noted here. The process of producing knowledge is one of growth. Discovered principles become data which may be used in making other discoveries. In the course of our racial experience, particularly during modern times, a considerable store of knowledge relative to education has been accumulated. Most of this knowledge is recorded in treatises on educational theory, educational psychology, philosophy of education, and school administration. Unfortunately, not all that one finds in books relating to education is true but much valid knowledge is contained which a "discoverer" of educational procedures, rules and principles will find helpful to use.

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<sup>1</sup>For a more extended discussion of educational research, see:

MONROE, WALTER S. "Service of educational research to school administrators," *The American School Board Journal*, 70:37-39, 122, 125, April, 1925.

The somewhat dogmatic observations of the preceding paragraphs may be epitomized as follows: The ultimate purpose of all educational research is the discovery of procedures, rules and principles relating to the various aspects of education. Critical reflective thinking is required in which discovered facts and principles may be utilized, as well as original data. Thus the answering of any question about education by means of critical reflective thinking, based upon the "best" data obtainable, may properly be called educational research.<sup>2</sup>

**Reporting an important phase of educational research.** The report of an investigation serves to record and communicate the procedure and the results but it also fulfills an important function in the process of research. In the act of writing, if it is well done, the research worker refines his thinking and the detailed record facilitates the critical testing of the work done. Thus an investigator should not consider that he has completed his task until a complete report has been prepared. If he is interested in communicating his work to others, the report must be well written in order to fulfill that purpose effectively.

**The communicatory function of a report of educational research.** Usually in preparing a report of a study, a research worker should not confine his purposes to "telling" the reader the answer which he has obtained to the problem studied.<sup>3</sup> Instead, he should try to guide the reader to think about the problem in such a way that at the conclusion of his reading a dependable answer will have been attained. Thus an effective discussion of a problem and its solution should guide the reader (1) to define the problem clearly so that he will understand just what questions are to be answered and in some cases their relation to other questions, (2) to understand the data introduced, especially to be aware of their limitations, and (3) to test critically the hypothesis which is to be accepted as

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<sup>2</sup>A research worker at times may be concerned with the construction of an educational test or the derivation of some formula or other procedure. Such work may be called auxiliary research to indicate the fact that it does not directly produce new knowledge. However, it is a means to this end.

<sup>3</sup>There may be occasions when an abbreviated report should be made. For example, in an oral presentation it is undesirable to give a large number of details and one may appropriately ask his audience to assume that the technical procedure was satisfactory or at least to take his word for it. On such occasions, it is also undesirable to present the details of one's data.

the answer and as a result to qualify or limit it if the data indicate that this should be done. In case other hypotheses are likely to occur to the reader, the discussion should guide him to an understanding of the reasons for their rejection.

**Purpose of this bulletin.** It is the purpose of this bulletin to suggest answers to the following questions: (1) What are the criteria by which reports of educational research should be judged?<sup>4</sup> (2) How should one proceed in his writing so as to meet these standards? (3) What should one do in preparing a manuscript for the printer?

The first of these questions forms the topic of Chapters II and III. The second is dealt with in Chapter IV, and Chapter V gives suggestions for preparing the manuscript for the printer.

**A good report based upon clear and critical thinking.** It is obvious from the comments on the nature of educational research and the communicatory function of a report that a necessary prerequisite is clear and critical thinking about the problem by the writer. He cannot be successful in guiding a reader to think clearly and critically unless he himself has first thought clearly and critically. Hence, in considering the procedure of preparing a report of educational research, and in the formulation of criteria by which the completed product should be judged, we shall be concerned largely with the process of clear and critical thinking.

Good "educational writing" is not secured by following a mechanical procedure. Although many good writers are accustomed to follow a somewhat fixed procedure in the production of manuscripts, writing, including the prerequisite thinking, is not accomplished by going through a series of mechanical steps. In discussing the process of reflective thinking we are accustomed to recognize four steps or phases: (1) Defining the problem; (2) Collecting necessary information or data; (3) Forming hypotheses; and (4) Verifying proposed hypotheses until a satisfactory solution is found. Although these steps describe a general pattern, thinking is not in any sense a mechanical procedure. It is characterized by variation rather than

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<sup>4</sup>The phrase "report of educational research" is used here to include any educational writing in which a problem is defined and the reasoning leading to the answer presented. It does not include inspirational articles or addresses nor material which should be classified as propaganda. By confining this bulletin to the reporting of educational research the authors do not intend to imply that the criteria presented are not applicable to the reporting of research in other fields. However, they have not canvassed the needs outside of the field of education.

by uniformity. For the same reason we cannot prescribe a fixed procedure for writing, and the discussion in the following chapters, particularly Chapter IV, is therefore necessarily confined to indicating a general pattern of writing.

**Good thinkers not necessarily good writers.** Although clear and concise thinking is a necessary prerequisite for good writing, ability to think out correct answers to questions does not necessarily make one a good writer. This observation follows from the communicatory function of a report of educational research which we presented in an earlier paragraph. Good writing, that is, writing which is successful in guiding a reader to think clearly, comprehensively, and concisely about the problem and eventually to arrive at a conclusion which he feels is dependable, requires more from the writer than ability to arrive at the correct answer to the problem being considered. Some excellent "problem solvers" find it difficult or impossible to produce good manuscripts and some thinkers who are classed as mediocre, or at least not as brilliant, have become successful writers.

**Good writing the result of training.** The ability to write well cannot be acquired offhand, nor can any treatise such as this bulletin eliminate the necessity for long and perhaps laborious training. Most of us need extended practice in putting our ideas into words and in sorting and organizing our phrases, sentences and paragraphs so that our writing may be effective as an instrument of communication. As is the case in many lines of human endeavor, proficiency, particularly high proficiency, is attained only as a result of a long period of study and training. Some persons possess greater talent for writing than others, but anyone of average ability who has the patience to undergo the necessary training and practice can become reasonably proficient in the craft of writing.

**Audience to whom this bulletin is addressed.** This bulletin is addressed to all who are engaged or who desire to engage in educational research. As we have pointed out, the reporting of the results of an investigation should be considered an integral and necessary phase of one's work. Superintendents, principals and teachers who desire to report concerning their work, either at meetings of teachers or in the educational press, should find many helpful suggestions in the following pages. The authors, however, have particularly in

mind students in teacher-training institutions, especially graduate students who are engaged in the preparation of theses.

**The source of the following suggestions and directions.** The following discussion is necessarily subjective in that it represents the judgment of the authors. However, it is the outgrowth of several years of experience in the production and publication of reports of educational research and has been formulated after an extended consideration of the questions stated in an earlier paragraph. Furthermore, books and manuals dealing with questions relative to effective writing have been consulted.

## CHAPTER II

### CRITERIA FOR JUDGING "EDUCATIONAL WRITINGS"

The criteria or standards to be used in judging a report of educational research have been grouped under three heads:

- A. General structure.
- B. Development, evaluation, and organization of ideas.
- C. Details of structure and form.

In Section I of this chapter the criteria have been expressed in terms of questions which are to be answered in passing judgment upon a report. In Section II the criteria are explained and in some cases illustrated. Additional illustrations of the details of structure and form are given in Chapter III.

The reader will note that some of the criteria are not independent. In a few cases one criterion implies others, and in some there is a rather obvious overlapping but it is thought that this feature is not altogether undesirable.

**Relative importance of criteria.** Of the several criteria listed, those grouped under "development, evaluation, and organization of ideas" are the most important. Although good structure and form are highly desirable and in some respects necessary, a report cannot be classed as "good" unless the right ideas have been developed and an effective organization secured.

**Application of the criteria.** Preliminary to an attempt to apply these criteria a writer should seek a clear understanding of them by reading the second section of this chapter. Those listed under "development, evaluation, and organization of ideas" are somewhat intangible and are probably the most difficult to apply effectively; but as stated in the preceding paragraph, they are the most important and therefore should be given especial attention.

The criteria are intended to serve as guides in actual writing and to provide bases for criticising one's work when revising a manuscript. As preliminary training it will be helpful to apply the criteria in judging reports of research published in educational periodicals and as bulletins and monographs. In doing this one should not merely answer the questions categorically but cite in addition definite evidence in support of the answers given. In the beginning it will be helpful to write out a statement of the evidence.

## I. SUMMARY OF CRITERIA

### A. GENERAL STRUCTURE.

1. Major divisions and their sequence.
  - a. Are the following divisions reasonably explicit: definition of problem, source of data, plan of treatment, the discussion of each question to be answered, and the conclusion?
  - b. Is the order of the divisions named above an effective one for the particular report under discussion?
2. Introduction.
  - a. Is the problem introduced in such a way that a competent reader will appreciate and understand the purpose of the report?
  - b. Has superfluous material been eliminated from the introduction?
3. Definition of problem.
  - a. Is the reader given a precise statement of the problem or problems which are to be considered?
  - b. In case the problem is related to other problems, are the relations made clear to the reader?
4. Conclusion and summary.
  - a. Is the reader given in convenient form an explicit answer to each question included in the "definition of the problem"?
  - b. In case the discussion leading to the answer to a question or to a group of related questions is lengthy, is the reader given a brief summary?

### B. DEVELOPMENT, EVALUATION, AND ORGANIZATION OF IDEAS.

5. Trend of thought.
  - a. As the reader "traces" the writer's thinking, will he be led from a clearly defined problem to a critical and scholarly answer by a route which is satisfying to him?
  - b. Is an encyclopaedic enumeration of ideas or facts avoided?
  - c. Are there sufficiently explicit connections between chapters or other major divisions?
  - d. Have cross references been made where they would be helpful to the reader?

6. Development of ideas.
  - a. Has the writer avoided leaving "gaps" in his "trend of thought" for the reader to fill in?
  - b. Have the important ideas been "developed" so that the average reader will fully comprehend them?
  - c. Is the discussion connected with fundamental concepts and principles; that is, does it avoid implications of superficiality?
  - d. Has the writer developed his ideas so completely that no points have been overlooked which might leave the reader with unanswered questions?
7. Evaluation of ideas.
  - a. Have all irrelevant ideas been eliminated?
  - b. Have the ideas been grouped properly with reference to their relative importance?
  - c. Is it easy for the reader to pick out the important points in the discussion?
8. Accuracy of interpretation.
  - a. Have the data been accurately interpreted?
  - b. Do the statements agree with generally accepted opinion and "common sense"? If not, is attention called to such disagreements?
  - c. Are the writer's statements justified by his data?
9. Precision of statement.
  - a. Are the statements made so that they will convey to the reader exactly the meaning intended?
  - b. Are all statements worded so that ambiguity or indefiniteness is avoided?
  - c. Have the statements been expressed so that a competent reader will not be in doubt regarding the exact ideas in the mind of the writer?

C. DETAILS OF STRUCTURE AND FORM.

10. Diction.

- a. Have appropriate words and phrases been used at all times?
- b. Have particular words and phrases been used with a consistent meaning?
- c. Have words and phrases to which common practice has assigned technical meanings been used correctly?

- d. Has attention been called explicitly to words and phrases with an unusual or restricted meaning?
  - e. Has the "over-working" of certain words been avoided?
11. Clearness.
- a. Is the vocabulary suitable for the intended audience?
  - b. Are the ideas expressed in simple yet definite language?
12. Rhetoric, grammar, spelling, and punctuation.
- a. Have the rhetorical rules relative to unity, coherence, and emphasis in sentence and paragraph construction been properly observed?
  - b. Have rules of grammar been observed?
  - c. Are all words correctly spelled?
  - d. Has consistency in the plan of punctuation been observed?
13. Form of tables and graphs.
- a. Are the captions of tables at the top and those of graphs at the bottom?
  - b. Are the captions, box headings, and other labels sufficiently complete so that a competent reader will be able to understand the table or graph without referring to the accompanying text?
14. Explanation and interpretation of tables and graphs.
- a. Has the enumeration of the facts summarized in a table or diagram been minimized in the accompanying text?
  - b. Is the accompanying text sufficiently complete so that it is unnecessary for the reader to refer to the table or diagram in order to follow the trend of thought?
  - c. Are references to tables and graphs sufficiently explicit so that the reader will have no difficulty in locating the correct table or graph?
  - d. In interpreting a table or graph, is the introduction of irrelevant facts or comments avoided, so that the trend of thought is not broken?
15. References to sources of information.
- a. Are bibliographical references given for statements of facts taken from the works of other persons?

16. Bibliographical form.
  - a. Are all references both in footnotes and in bibliographies given in an approved bibliographical form?
17. Chapter titles, table of contents, preface, title page, order of paging, spacing, kind of paper, and so forth.
  - a. Have conventional rules with reference to chapter titles, table of contents, and so forth been observed?
18. Footnotes.
  - a. Have footnotes been used to give needed explanations or other comments which will make more certain a correct and complete understanding by the reader?
  - b. Has material which would tend to break the trend of thought but which is desirable to include been placed in a footnote or in an appendix?
19. Miscellaneous.
  - a. Have conventional rules with reference to abbreviations, division of words, spelling out numbers, and so forth been complied with?

## II. DISCUSSION OF CRITERIA

1. **Major divisions and their sequence.** No general rule can be stated with reference to dividing a report into chapters or other sections. Usually there is an introductory section or chapter in which the problem and its discussion are introduced to the reader. Either as a part of the "introduction" or as divisions coordinate with it, there should be a "definition of a problem" and a statement of the "sources of data" and "plan of treatment." Sometimes a general statement is made in regard to the "limitations of the data."

The plan of the "discussion of the problem" will be determined largely by the way in which the problem is defined. Usually there should be a distinct division for each major subordinate problem or question. For each problem or question there should be an explicit conclusion. Sometimes these may be placed at the end of the respective chapters or sections, but in lengthy reports it is desirable to set apart a final chapter for this purpose. In case the discussion of a problem is lengthy there should be a summary of the argument. A few writers have placed a summary of the conclusions at the beginning of the report.

In short manuscripts (twenty-five pages or less) it is not customary to label the sections except by a paragraph or center heading, but a critical reader should always be able to identify them without difficulty. When a manuscript includes as many as fifty typewritten pages double-spaced, it is customary to form chapters or sections and to label each with an appropriate title. However, it is not possible to state a definite rule in regard to the mechanical form of the divisions. In fact the mechanical form is not highly important.

When there is an explicit division into chapters or sections there should be a "table of contents." It is also customary to list the tables and diagrams by quoting their numbers and captions. These should follow the "table of contents" on separate pages.

**2. Introduction.** The purpose of the "introduction" is to acquaint the reader with the problem under consideration so that he will both understand and appreciate the purpose of the following discussion. In introducing a problem the writer may tell how it arose and discuss briefly its importance, but if it is already familiar and of immediate interest to the audience addressed this phase of the introduction should be omitted or at least made very brief. The introduction should contain such explanatory statements as are judged necessary to put the reader in the proper frame of mind for the understanding of the material that follows. In the introduction to this bulletin we have called attention to the "nature of educational research," "reporting an important phase of educational research," and so forth.

The introduction should never be longer than necessary, as a long introduction tends to bore most readers. It is, however, not possible to specify even the portion of a report which may properly be devoted to an "introduction." In case the section so labeled includes, in addition to a statement of the writer's purpose, a description of the sources of data and of the plan of treatment and some comment upon the limitations of the data, it may extend over several pages. On the other hand it may be relatively short. A good rule to bear in mind is that as soon as the reader understands the problem, he probably will be interested in what the writer has to say about it and will be inclined to resent an unnecessary delay.

**3. Definition of problem.** An effective way to define a problem is to state in precise terms the specific questions to be answered. If it is thought desirable, explanation and comment may be added. If there are closely related questions which are not to be considered, it is sometimes helpful to point these out.

**4. Conclusion and summary.** A reader should always be able to find at the end of the manuscript or at the end of the major divisions a brief statement of the answers to the questions given in the definition of the problem. If answers are to be stated for a large number of questions, they should be organized by grouping and subordination so that the reader will not be bewildered by an encyclopaedic enumeration of statements. Furthermore, the conclusion should be confined to a statement of the answers to the questions being considered. It frequently happens that data presented in connection with one problem may relate also to other problems. If deemed desirable, a writer may use a footnote to call attention to the implications of the data with reference to these other problems but such comments should not be included in the body of the discussion nor mentioned in the conclusion.

When the discussion of a particular question is lengthy, the arguments should be summarized briefly. When a number of related questions have been considered, it is desirable to add a summary showing the relation which exists between the conclusions reached for the separate questions.

**5. Trend of thought.** The phrase "trend of thought" is used as a name for a somewhat subtle and indefinite concept. It is, however, implied in a writer's purpose with reference to his readers. The sentences and paragraphs which the writer sets down are for the purpose of rendering maximum guidance and assistance to a reader in thinking from the problem defined to its solution. The writer has thought through the problem and he is writing for the purpose of guiding the reader also in thinking out the same answer. This does not mean that the writer should describe his actual mental processes in thinking out his solution. Frequently his thinking involves much "scrapped thought," and he should endeavor to guide the reader so that such waste will be eliminated. Therefore, the writer should rearrange his thinking about the question so that the reader's thinking will be as efficient as possible.

The organization of one's writing should be such that the reader will progress through the several phases or steps of reflective thinking; defining the problem, gathering data or information, forming hypotheses and verifying them. The reader should at all times have a well-defined problem in mind which he is trying to answer by means of his reading. Ideas should be presented to him at the time

he needs them. When he has been guided to the solution which the writer wishes him to reach, he should be led to examine it critically.

Many qualities enter into a trend of thought. There must first be a good general organization, then the rules of unity and coherence must be observed in each paragraph and sentence. All irrelevant material must be excluded. Good writing is not a series of isolated or unconnected statements even though each one itself may express an important idea or principle.

6. **Development of ideas.** Words and phrases are used as symbols for ideas. Such phrases as "supervised study," "divided period," "individual instruction," "motivation," "curriculum," and "intelligence" occur frequently in educational writings and are intended to stimulate in the mind of the reader certain ideas. One person's concept of "supervised study," for example, is likely to differ from another's in wealth of associations and in richness of meaning, even when there is no actual disagreement. Because a writer has spent some time in formulating, enriching and organizing his concepts, he is very likely to attach to the symbols used a richness of association and meaning much greater than that stimulated in the mind of his reader, unless he "develops" his concepts by explicit references to associated ideas and by appropriate illustrations. Hence, if a writer is to be efficient in fulfilling his function with reference to the reader he must, at least in the case of an important idea, keep it with its associated ideas within the focus of the reader's attention until it has been fully comprehended.

Many writers tend to abbreviate. Important ideas are mentioned incidentally or merely alluded to, and in some cases, omitted altogether. It thus becomes necessary for the critical reader to fill in the "gaps" in the thinking if he is to avoid a feeling of incompleteness. In such a case the writer has failed to fulfill his function in guiding his reader to thinking fully and clearly about the problem under consideration.

The writer who is familiar with the ideas relating to the problem which he has studied may tend to under-rate the necessity of developing these ideas in writing. However, undesirable abbreviation frequently is due to the failure on the part of the writer to think sufficiently clearly and comprehensively about his problem. This characteristic usually applies to writing which we call superficial. When reading such a report a thoughtful person is left with many

unanswered questions and with a feeling of insecurity about the conclusion because its basis is not clear or is perhaps unknown to him.

**7. Evaluation of ideas.** In thinking about a problem<sup>1</sup> many ideas may come into the mind of the writer. Some are pertinent to the problem; others are not. If extraneous ideas are introduced into the discussion, the reader's attention is likely to be distracted from the main issue. Hence, the good writer carefully evaluates his ideas and includes only those which in his judgment will be helpful to the reader in connection with the particular problem being considered. The good writer furthermore evaluates those ideas which he judges pertinent to his problem and assigns those of minor importance to subordinate positions.

It is not sufficient to reject only those ideas which are erroneous or unimportant in general. An idea may be very useful in connection with one problem but have little or no value in the treatment of another. Good writing is not merely recording good ideas. It is rather the recording of ideas which are good for a particular purpose. One of the difficult tasks of a writer is to stick to his text. His prejudices in favor of certain ideas constantly tempt him to introduce topics which have little or no connection with the problem.

Sometimes it is necessary to try out an idea or group of ideas in order to determine their appropriateness for the purpose at hand. Most good writing is a result of many revisions. Sentences or even whole paragraphs which have been written at the expense of much effort are eliminated and others added. Sometimes a slight modification of an idea or the way in which it is presented will greatly increase its effectiveness.

The proper subordination of ideas is also important. As has been pointed out, the writer should seek to build up a "trend of thought." The effectiveness of the ideas included in this "trend of thought" depends upon the organization in somewhat the same way that the convenience of a house depends upon the arrangement of the several rooms. There should be a few principal ideas and all others should be subordinated to these. The reader will then be given a few major points which will serve as organizing centers for the related ideas.

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<sup>1</sup>This includes any reading on the problem which the writer may do.

8. **Accuracy of interpretation.** The writer is responsible for knowing his data. If they are not representative or if they are subject to errors or other limitations he must qualify his statements accordingly. He should make certain that his data justify a statement before he makes it. He should also check it against generally accepted beliefs and common sense. Even when he is satisfied in regard to its accuracy, he, in many cases, should call the reader's attention to any disagreement with beliefs or statements by other writers and should indicate the basis of his judgment. In the absence of such explanation the critical reader may judge the statement to be inaccurate and conclude that the writer has been careless in his thinking.

9. **Precision of statement.** A precise statement conveys exactly the meaning intended by the writer. When read carefully by a competent person there is no uncertainty in his mind. He is not left in doubt on any point. He is not confused. He has no questions to ask about what the writer intended to say. It is obvious to him that the writer has very clear, definite and precise ideas to express. A precise statement usually includes limitations and restrictions which should be kept in mind. The words used have been selected with a view to the precise shades of meaning which they convey.

Lack of precision may be due to (1) poor choice of words, (2) faulty usage of technical terms, and (3) omission of restrictive words and phrases.

The following brief quotations from "educational writings" have been carefully selected to illustrate the lack of precision of statement. However, the reader should realize that these excerpts may lose much of their effectiveness as illustrations by being abstracted from the setting given them by their authors. The first quotation illustrates the effect of the choice of words upon the precision of statement:

In selecting drill material in reading, methods can be determined by a wise manipulation of reading tests.<sup>2</sup>

The words, "method," "wise," and "manipulation" are poor words to use in this sentence. The following sentence expresses more clearly and precisely what the author appears to have had in mind:

The use of reading tests designed to reveal the specific deficiencies of children is helpful in selecting drill material in reading.

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<sup>2</sup>PAULU, E. M. *Diagnostic Testing and Remedial Teaching*. New York: D. C. Heath and Company, 1924, p. 22.

A second illustration is:

To overcome in a single grade the heterogeneous grouping of children from the standpoint of mentality, various administrative devices have been employed with varied degrees of success. Two of these devices, teacher's estimates of pupil's work, and mentality tests stand out prominently.<sup>3</sup>

In this statement one is confused because "teacher's estimates of pupil's work," and "mentality tests" are called administrative devices which overcome the heterogeneous grouping of children. They are not devices of this sort. They are rather instruments for securing information, which in turn may be used as a basis for grouping the children belonging to a single grade.

A considerable technical vocabulary has gradually been built up in the field of education. Many words which were already in use have been assigned very definite meanings. Failure to use such words in accordance with the technical meanings assigned to them greatly reduces the effectiveness of one's writing. The word "standard" is very frequently used incorrectly. For example:

In measuring certain educational products there too must be a standard corresponding to the many commercial standards. It is not for us here to question how educational standards are obtained.<sup>4</sup>

It appears from what follows that in the second sentence this writer is using "standard" in the sense of "norm." In the first sentence it obviously has the meaning of "standard unit" such as a standard yard, or a standard pound. Hence, the meaning of the quotation is not clear, and the reader is likely to be confused or misled. It is probable that the writer failed to think clearly.

The quotation below illustrates the securing of precision through the use of restrictive terms:

In this chapter we shall not rehearse the facts concerning the boys and girls of *fourteen or fifteen* which are available in books on the psychology of *childhood and adolescence*, but shall report three studies which add new information concerning the *select* group of boys and girls who *enter American* high schools.<sup>5</sup>

The words printed in italics add greatly to the precision of this statement. Their value becomes apparent when the statement is rewritten as follows:

In this chapter we shall not rehearse the facts concerning boys and girls which are available in books on psychology, but shall report three studies which add new information.

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<sup>3</sup>PAULU, E. M. *Diagnostic Testing and Remedial Teaching*. New York: D. C. Heath and Company, 1924, p. 58.

<sup>4</sup>*Ibid.*, p. 28-29.

<sup>5</sup>THORNDYKE, E. L. *The Psychology of Algebra*. New York: The Macmillan Company, 1923, p. 1. The italics have been inserted by the authors of this bulletin.

The following is an illustration of a paragraph which adds to the precision of the chapter in which it appears:

Care must be taken, however, not to leave the impression that the increased expenditure per child of school age means merely an increased cost of an identical service. During this period the public school system of the state has not only attracted and held in school a larger part of the children of school age, but it has expanded its "program" by establishing a more varied and elaborate curriculum, and additional service such as transportation of children, health service, kindergartens, vocational and continuation schools.<sup>6</sup>

This paragraph serves to direct the attention of the reader to the avoidance of a conclusion which otherwise might be inferred from the figures just cited. It is also an illustration of precise writing. The words have been chosen carefully in order to convey exactly the meaning intended. Evidently the writer thought that the word "program" might not convey a sufficiently definite meaning and for this reason he has defined it.

It is obvious that precision in thinking is a prerequisite for precision in expression. It would be only accidental if one wrote precise sentences and paragraphs when he did not have precise ideas to express. On the other hand it is not generally realized that faulty usage of technical terms, omission of restrictive expressions, and even a poor choice of words and phrases constitute evidence that the writer has failed to think clearly and precisely. There may be exceptions but in general this may be accepted as an empirical rule.

10. **Diction.** Although "general structure," "trend of thought," "development of ideas," and so forth are potent in determining the quality of a report, a writer cannot communicate his ideas effectively unless he uses appropriate words and phrases. We have already referred to the development of a technical vocabulary in the field of education. Some words that are used with only a general meaning in conversation and in non-technical fields have been assigned precise meanings in the field of education. Examples of such words are; standards (in educational measurements), intelligence, objectives, content, correlation, project, diagnosis, supervision and motivation. Other words and phrases have been coined to represent ideas; junior high school, project method, achievement test, power test, supervised study, divided period, Dalton plan, and so forth.

We have illustrated (pages 21-22) how the use of technical terms affects precision of statements. A writer's skill in choosing verbs,

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<sup>6</sup>STRAYER, GEORGE D. and HAIG, ROBERT M. *Financing of Education in the State of New York*. New York: The Macmillan Company, 1922, p. 138.

adjectives and adverbs also is very potent in determining this quality of his writing. Fine shades of meaning cannot be expressed unless appropriate words are used.

As a rule a writer should use a word or a phrase only as a symbol for the meaning usually given to it. If he finds it necessary or desirable to modify this meaning, he should call the reader's attention to the restricted or changed meaning. Usually such explanatory comments should be given in a footnote and the reader may be reminded of the modified meaning by enclosing the word or phrase in quotation marks whenever it appears.

It is highly important that a writer be consistent in his use of terms. Any inconsistency will be annoying to the reader and may make it impossible for him to understand what has been written. Furthermore, lack of consistency in the use of terms and phrases is usually evidence of careless or superficial thinking about the problem being discussed.

Frequent recurrence of a word or phrase should be avoided. No term should be over-worked. No definite rule can be stated, but in general a writer should endeavor to avoid the repetition of the same word or phrase in a short sentence or in successive short sentences.<sup>7</sup> This rule is especially important in the case of an emphatic noun or verb.

**11. Clearness.** The function of a report is to stimulate in the mind of a reader certain definite ideas. If these ideas are not impressed upon him, if he misinterprets what is said or is left in doubt, the writer has failed either in his own thinking or in his medium of expression. This vital principle of clearness is the starting point for any sound treatment of a subject. Every good style is essentially a clear style. Good writers vary in their forms of expression. They may have, and usually do have, certain peculiarities, but they have in common the one aim of presenting their material in such a way that a reader is not troubled by the slightest obscurity or irrelevance.

**Clearness in relation to force and beauty.** Rhetoricians, in general, agree upon three fundamental laws of composition. Clearness, force, and beauty are considered essential to really good writing. Both force and beauty are difficult of attainment because of their elusive-

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<sup>7</sup>This general rule does not apply to the more common prepositions, conjunctions, etc.

ness and are largely the result of experience in writing.<sup>5</sup> Force is dependent upon the selection and arrangement of the words and phrases used and upon the proportional development of the ideas introduced into the discussion. Beauty is related to the structural organization, to the choice of words, and to the method of expression. Of these three attributes, clearness, force and beauty, it is obvious that for the type of "educational writing" discussed in this bulletin, clearness is the one requiring most emphasis. Persistent effort and practice should enable one to write clearly and forcefully, provided he is able to think clearly. Beauty in the sense of artistic expression may never be attained, but if constant attention is given to the details of structure, if the vocabulary is enriched, and if the form of expression is varied, a style, at least, will be developed which is neither laborious nor irritating to a sensitive reader.

**Clearness in relation to interest.** Often it is necessary, in addition to making the exposition clear, to make it interesting. Initial interest is secured by the way in which the problem is introduced. Holding the reader's attention is dependent upon the manner in which the discussion of the problem is handled. Irrelevant statements tend to hinder the reader in getting the meaning. The presence of too many ideas is likely to be distracting and confusing. Verbosity on the part of the writer makes the reading laborious. On the other hand, if the statements are too bare, if the writer assumes too great knowledge on the part of the reader, the ideas will not be fully grasped nor appreciated. Unfamiliar material or abstract statements should be clarified by the use of illustrations or examples. Statistical data often are confusing unless skillfully presented in tables or diagrams. No rule, of course, can be laid down. Each writer must decide whether, considered from the standpoint of the average reader, the particular statement which he makes needs elucidation or will be made more effective by illustration.

A writer should remember that the average reader does not have the patience of the specialist in "wading through" details unless they add directly to an understanding of the discussion. Anything

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<sup>5</sup>Many successful writers have testified that they secure a great deal of help from reading aloud from some good writer. In this way they are able to get the "feel" of the style of the author. One successful young writer made it a practice before beginning the writing of an article to read aloud from the works of William James. He did this not for the purpose of understanding James but rather for stimulating in his own thinking a flow of words which would have the quality of force and beauty as well as of clearness.

which is of use in increasing the interest of the reader is justified, but anything which is mere ornamentation is to be condemned. It may be said in general that flights of the imagination, elaborate figures of speech, and the use of poetical quotations are to be avoided in reporting educational research. Instead of assisting the reader in understanding the "trend of thought," they usually distract him. Furthermore, quotations, especially of a poetical nature, often serve to camouflage a lack of thinking on the part of the writer and tend to create in his readers a feeling of distrust.

**12. Rhetoric, grammar, spelling, and punctuation.** The authors of this bulletin have not attempted a systematic or a complete treatment of rhetoric, grammar, spelling, and punctuation. The following discussion is limited to a few rules which, judging from our experience, are frequently violated in the kinds of educational writing referred to in this bulletin. For complete and authoritative treatments of rhetoric and grammar the reader is referred to the following manuals:

GREEVER, GARLAND, and JONES, EASLEY S. *The Century Handbook of Writing.* New York: The Century Company, 1919. 228 p.

LEONARD, ARTHUR W., and FUESS, CLAUDE M. *Good Writing.* New York: Harcourt, Brace and Company, 1922. 314 p.

MANLY, JOHN M., and POWELL, JOHN A. *A Manual for Writers.* Chicago: University of Chicago Press, 1913. 225 p.

MANLY, JOHN M., and RICHERT, EDITH. *The Writer's Index.* New York: Henry Holt and Company, 1923. 261 p.

**Paragraph construction.** A paragraph should be restricted to the presentation of a single central idea and very closely related subordinate ideas. It should represent a unit of a writer's discussion, and should embody unity, coherence, clearness, and emphasis. Its central idea in all cases should be apparent to the reader, and sometimes should be expressed in the first sentence. A paragraph should never close with a weak ending.

No rule can be stated in regard to the length of a paragraph, but in general long paragraphs should be avoided. It is seldom that paragraphs which exceed 200 to 250 words in length are really good. The poor structure is not due to the length of the paragraph but rather to the fact that many writers, particularly amateurs, begin a new unit of thought by the time they have written in excess of 200 words.

**Sentence construction.** The essentials of a sentence are good connection, good organization, and correct grammar. The untrained

writer frequently finds it difficult to attain good sentence structure. Faults of grammar usually can be corrected with comparatively little effort, but practice is necessary in order to secure good organization. Frequently it is necessary to divide sentences, to twist them about, to join or to condense them, and in some stubborn cases to make a complete reconstruction.<sup>9</sup>

**Punctuation.** The main rules of punctuation regarding the more important uses of the period, comma, and so forth are well-fixed and accepted by all authorities and should be carefully observed in sentence structure. However, a variety of usage exists concerning minor points. Certain persons and publishers tend to punctuate freely, others sparingly. Each writer should decide regarding the method of punctuation he wishes to adopt and should be consistent throughout his manuscript in the use of that method. He should keep in mind that punctuation depends upon meaning; some marks are essential to clearness; others, though not essential, are helpful; and all which do not aid in making the meaning clear should be avoided.

**13. Form of tables and graphs. (a) Tables.** Statistical data usually should be presented in tabular form with a specific heading and a table number in Roman numerals. Occasionally when the data are simple and do not occupy more than three or four lines, they are presented informally without a heading; but this practice is to be discouraged.

The construction of good tables is difficult and few general rules can be given which will apply in all cases.<sup>10</sup> Frequently, it will be necessary for the writer to exercise his ingenuity in order to set up good tables. As a guiding principle he should bear in mind that a table should be easily read and should present the data effectively. Also he should consider the available space on the page, and unless the presentation of the data is weakened, he should confine the table to a single page of the manuscript. Extremely large tables often can be avoided by breaking them up into two or more separate ones. Each table should have its title or caption and both the general heading and the subordinate headings should be sufficiently explicit that the table can be understood without reference to the accompanying text.

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<sup>9</sup>See Chapter III, pages 41-47, for illustrations of the improvement of sentence structure.

<sup>10</sup>See Chapter III, pages 33-34, for illustrations of the form of tables.

(b) **Graphs.** Frequently the effectiveness of one's writing may be increased by presenting certain types of facts in graphical form. Simple diagrams and figures are easily understood by most readers and are especially helpful to those who have difficulty in getting the meaning from the printed page.

When employing graphical methods of expression, accuracy and precision should be observed just as when writing a verbal report. Since excellent treatises on graphical methods are easily accessible,<sup>11</sup> we shall not discuss them in this bulletin but we recommend that a writer become familiar with the rules governing graphic representation before he attempts to apply such methods. Violation of any of the standard rules may result in conveying misleading if not actually erroneous ideas to the reader.

In addition to the rules relating to the form of graphs, there are others which define conventional practices relative to arrangement and to the labeling of a figure. The caption should always be placed below the graphs and the number should be in Arabic numerals, not Roman. If possible all the labels of the diagram should be arranged so that they can be read when the page is held in one position. A "confused mass" of lines and labels should be avoided, but sufficient identifying and explanatory marks should be included that a competent person will be able to understand the graph without referring to the accompanying text.

In making graphs, or in preparing illustrations such as drawings or photographs for which any process of photogravure is necessary for printing, the fact that it is impossible to obtain a good print unless the original is sharp and clear should always be borne in mind. India ink rather than ordinary ink or pencil should be used in making graphs. Captions and other labels may be type-written. As a rule, all illustrations should be made somewhat larger

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<sup>11</sup>For a brief account see:

RUGG, HAROLD. *A Primer of Graphics and Statistics for Teachers*. Boston: Houghton Mifflin Company, 1925. 142 p.

ALEXANDER, CARTER. *School Statistics and Publicity*. New York: Silver, Burdett and Company, 1919. 332 p.

For a more elaborate treatment see:

KARSTEN, KARL G. *Charts and Graphs*. New York: Prentice Hall, Inc., 1923. 724 p.

BRIXTON, W. C. *Graphic Methods for Presenting Facts*. New York: Engineering Magazine Company, 1914. 371 p.

WILLIAMS, J. HAROLD. *Graphic Methods in Education*. Boston: Houghton Mifflin Company, 1924. 319 p.

than desired in the printed report as reduction in photographing tends to sharpen the details while enlargement magnifies the imperfections.

**14. Explanation and interpretation of tables and graphs.** Unless it is certain that a table or graph will be understood easily, the reading of it should be explained in the text of the manuscript, but no extended enumeration of the facts which have been summarized in the table or graph should be given. The interpretation should be confined to those facts which are essential to the discussion of the problem. The reader's "trend of thought" will be broken if his attention is called to items or inferences not related to the particular problem under consideration. Tables and graphs should be considered supplementary to the text and not intimate parts of it. They supply details in a convenient summary form, they also add emphasis, but they do not express a "trend of thought."

**15. References to sources of information.** When specific facts are used or sentences or paragraphs from another's writings are quoted, it is customary to give in a footnote the source from which such material is taken. This is done for two reasons: custom demands that a writer acknowledge his indebtedness in such cases; and the reference enables the reader to consult the original material if he so desires. Furthermore, the information regarding the source of a statement frequently furnishes the reader with an index of its probable validity and accuracy. Naturally more confidence is placed in data taken from the writings of a person of reputation or from a source carefully edited than from unknown authors or questionable publishers.

**16. Bibliographical forms.** Whenever a reference is made to the work of another author, sufficient information should be given to enable one not only to locate the material but also to purchase it. Sometimes full information is not given on the publication and in such case the reference cannot, of course, be complete.<sup>12</sup>

**17. Chapter titles, table of contents, preface, title page, spacing, order of paging, paper, and so forth.**<sup>13</sup> The chapter title should be concisely expressed and should indicate the purpose of the chapter.

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<sup>12</sup>See Chapter III, pages 35-37, for illustrations of bibliographical forms.

<sup>13</sup>See Chapter III, pages 37-39, for specific directions regarding items listed. In term papers, minor theses, small pamphlets, in which there are no explicit divisions, there would probably be no table of contents, nor preface. Lists of tables, etc. are also omitted.

The table of contents may be very simple, consisting of only the titles of the chapters, or may be elaborate with subordinate headings and second sub-headings. In many publications the chapter title itself is followed by an outline or brief synopsis of the contents of the chapter. No definite rules regarding the comprehensiveness of the table of contents can be given. Especially in such material as a thesis or a bulletin in which there is no index, it is probably desirable to list in some detail the divisions and subdivisions of the different parts or chapters.

The preface usually contains acknowledgments of assistance to persons who have given actual aid in the preparation of the manuscript, or whose books and other writings are used as references. In the case of a thesis the term "acknowledgment" is often used instead of "preface." A preface should be simple and dignified, should give some indication of the audience to whom it is addressed, and should contain some statements of the reasons for the writing of the manuscript.

18. **Footnotes.** Footnotes fulfill three principal functions: (1) to give a bibliographical reference for quoted material or for facts and statements; (2) to qualify or elaborate statements of the text when it is undesirable to include such comments in the body of the manuscript; (3) to suggest further treatment of the subject. Footnotes are apt to be treated more carelessly and inconsistently than any other part of the manuscript. They should, however, receive a writer's careful attention in regard to sentence structure, punctuation, and so forth, and especially in regard to the form of bibliographical references.<sup>14</sup>

19. **Miscellaneous. (a) Abbreviations.** Abbreviations of words or phrases are not generally considered good form in the body of the report. An exception is often made in regard to titles of persons as "Mr.," "Dr.," or "Prof." No one rule can be given in this case but consistency is urged both in the use and in the selection of the title. For example, "Dr." should not be used in referring to one person, and "Mr." or "Prof." to another of the same rank or position; or the title should not be given in one case, and omitted in another. Furthermore when titles are used, extreme care regarding their correctness should be taken. It may be said that "Professor" is usually written

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<sup>14</sup>A detailed description of the form of footnotes is given in Chapter III, page 39.

in full, "Doctor" frequently, and "Mister" seldom, if at all. A safe and widely used method is to omit titles altogether, especially if the person has attained prominence. In scholastic circles, however, it is customary to refer to the President of an institution by his title written in full.

**(b) Division of words.** The unnecessary division of a word at the end of a line should be avoided if possible. Unless objectionable spacing results, it is better to carry the whole word over to the next line. When divisions are necessary, the following suggestions may prove helpful.

Words in general are divided according to the natural divisions in correct pronunciation as *knowl-edge*, not *know-ledge*. Acceptable divisions may be made before such terminations as *ing*, *er*, *est*; immediately following a vowel as *intri-cate*, *mascu-line*; or between the consonants when two consonants occur between two vowels as *inef-fective*, *inflam-mable*. In language other than English the most important rule is to divide on the vowel as far as possible. If at all avoidable, two consecutive lines should not terminate in a hyphen.

In the following cases, divisions should never be made: monosyllables, as *weight*, *stopped*; two vowels sounded as one, as *mea-dow*, *peo-ple*; proper names; initials of a person's name; abbreviations as, *Ph.D.*, *A.B.*; or numbers expressed either in Arabic or Roman numerals.

**(c) Spelling out numbers.** In general, all numbers under one hundred, and all round numbers, as two thousand, five hundred, and so forth should be spelled out. Decimals as money and percents, numbers over one hundred and those used statistically in enumerations are usually written in figures. Any number, however, used to begin a sentence should be spelled out.

## CHAPTER III

### ILLUSTRATIONS OF CERTAIN DETAILS OF FORM

For several of the criteria noted under "Details of structure and form" in Chapter II, the authors of this bulletin feel that a supplementary discussion, largely in terms of illustrations, will be helpful to a writer in making his report conform to conventional requirements. Custom has given somewhat definite sanction to certain forms of tabular construction, bibliographical references, footnotes, and so forth; conventional rules have been fairly well established with reference to the placement of a chapter title, the arrangement of a table of contents, the order of paging a manuscript or a printed bulletin, the spacing, and the size and kind of paper used. Details of this type are discussed in the first part of this chapter. Following this discussion, consideration is given to certain aspects of sentence structure which, judging from the experience of the authors in editing manuscripts submitted to them for publication, appear to give the greatest difficulty to the average writer.

**Form of tables.** The caption of a table is usually written in all capitals with no punctuation mark at its close. (See Table I.) If there is a sub-title, it is placed on the line below the main title and written in capitals and small letters. (See Table IV.) When a second sub-title is considered necessary, it should appear, usually in parentheses, below the sub-title.

Tables should be numbered with Roman figures consecutively throughout the manuscript. The number followed by a period precedes the caption and appears on the same line.

Careful attention should be given to the various box heads (headings and sub-headings) of the different divisions of the table. Rules, horizontal and vertical, should be drawn setting off the main and sub-divisions, and each box-head should be centered in its own division.

The following directions regarding the ruling of a table should prove helpful. Horizontal double lines are placed at the top of the table, a horizontal single line at the bottom, and no vertical lines at the sides. Within the table, vertical lines are placed between the columns of data, horizontal lines are seldom used except to mark

off important divisions as in the box headings or to set off totals. Perpendicular double lines should be used only when the table is doubled upon itself, that is, when exactly the same kind of data appears on both sides of the double rules. This is done in order to break long narrow columns of data. (See Table II.) An open table, that is, a table with no perpendicular lines should not be used for more than three columns of data. (See Table III.) If such a table is long, it is often better to double it upon itself as in Table II.

**Illustrations of tables.** The following specimen tables are given as illustrations of the forms most commonly used in tabular construction. The first column division is known as "the stub" and consists usually of reading material. The other columns as a rule contain figures.

TABLE I. EXAMPLE OF A SIMPLE TABLE

Test	Form	Grade	Scores	Scorers	Difference

TABLE II. EXAMPLE OF A TABLE DOUBLED UPON ITSELF

Series C			Series C		
City	Number of cases	Percent of cases	City	Number of cases	Percent of cases

TABLE III. EXAMPLE OF AN OPEN TABLE

<i>Name of City</i>	<i>Time of Testing</i>	<i>Number of Tests Given</i>
Boston.....	October.....	3
Chicago.....	February.....	6

TABLE IV. EXAMPLE OF TABLE WITH SUBDIVISIONS  
This is the Most Common Form for Subdivisions and Second Subdivisions.

Intelligence Quotients	Achievement Quotients			
	Experimental		Control	
	Beginning	End	Beginning	End

TABLE V. EXAMPLE OF TABLE WITH VARIED DIVISIONS

States	Number of Factories	Number of Employees				
		Men	Women	Boys	Girls	Total

**Form of bibliographical references.** All references in either a footnote or a formal bibliography should be given in an approved form. Although slight variations in the order of the items of a reference and in punctuation are found in different authoritative publications, it is highly important that a writer adopt a definite form and follow it consistently. The forms adopted by the Bureau of Educational Research in its own publications are given on the following pages.

It should be emphasized that the author's name should be copied exactly as it appears, no change of any kind being made in it. If two or more references by the same author occur in the bibliography, his name should appear in the same form in each even though in the actual references initials may have been used in one case and the given names spelled out in another. In a bibliography the references usually should be arranged in alphabetical order according to the names of the authors regardless of the nature of the publications.

The forms listed here as illustrations have been labeled "book reference," "periodical reference," and so forth, so that they could be easily referred to, but the reader should understand that it is not

necessary to label a reference as a book, a periodical, or a report, for when a correct bibliographical form is used, this fact becomes evident.

**Book references.** In a book reference there are usually six items to be included. They should be arranged in the following order: *author or authors, title, place of publisher, publisher, date and pages.* If one or more of these items is not given in the publication, the arrangement of those remaining should follow the order stated above. The book references given below show the capitalization and punctuation which should be used.

POTTER, MILTON C., JESCHKE, H., AND BILLET, HARRY O. Oral and Written English, Intermediate Book. Boston: Ginn and Company, 1921. 270 p.

TERMAN, LOUIS M. The Hygiene of the School Child. Boston: Houghton Mifflin Company, 1914, p. 345-56.

Please note that the first reference gives the correct form for indicating the entire number of pages contained in a book while the second reference gives the form when a few specific pages are referred to. A reference to a specific section of a book or bulletin has a comma after the date, and for this reason is indicated by p.— rather than —p.

**Periodical references.** In a periodical reference, the title of the article is inclosed in quotation marks. This at once sets it off from a book reference. The items necessary for complete information should be given in the following order: *author, title, name in full of periodical, number of volume in Arabic figures, number of pages inclusive on which article appears,<sup>1</sup> month and year of publication.*

The publisher of the periodical is not included in the reference; for if desired for purchasing purposes it may easily be found. The references below show the capitalization and punctuation which should be used, and also give the forms for continued articles, and for editorials.

A single article:

FORDYCE, CHARLES. "Intelligence tests in classifying children in the elementary school," *Journal of Educational Research*, 4:40-43, June, 1921.

An article continued in separate volumes of a periodical:

MEAD, CYRUS<sup>D</sup>. "Silent versus oral reading with one hundred sixth-grade children." *Journal of Educational Psychology*, 6:345-48, June, 1915; 8:367-68, June, 1917.

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<sup>1</sup>If the writer wishes to refer to certain pages or a page instead of the entire article, these should be given rather than the total inclusive pages.

An article continued in the same volume of a periodical:

HENDERSON, ARCHIBALD. "Number, and the fundamental laws of algebra," *The High School Journal*, 4:51-53, 77-80, 171-73; March, April, December, 1921.

An editorial from a periodical:

COURTIS, S. A. "Scientific supervision," *Journal of Educational Research*, 1:67-68, January, 1920. (An editorial.)

**Monograph and bulletin references.** In addition to the material appearing in books and periodicals, there is a large quantity usually published by a university, a board of education, or some other organized body. This is called "bulletin material." Usually there are seven items to be given in a reference for a bulletin. These items are the same as those included in a reference to a book with the addition of certain information called *description*, which includes name, volume and number of the series of which the bulletin is a part, and immediately follows the title. The items should be arranged in the following order: *author or authors, title, description, place, publisher, date, and pages*. In case one or more of the items is not given in the publication, the others should be arranged in the order stated above. The references of bulletins given here show the proper capitalization and punctuation. All necessary information concerning the publication should be included. It will be necessary to watch closely that no series, names and numbers, volume numbers, and so forth are omitted.

United States Bureau of Education Bulletin:

CAPEN, SAMUEL PAUL. "Facilities for foreign students in American colleges and universities." U. S. Bureau of Education Bulletin, 1920, No. 39. Washington, 1920. 267 p.

Teachers College Contributions to Education:

BERKSON, I. B. "Theories of Americanization." *Teachers College Contributions to Education*, No. 109. New York: Teachers College, Columbia University, 1920. 226 p.

A school survey:

"An educational survey of Janesville, Wisconsin." Madison, Wisconsin: State Department of Public Instruction, 1918. 226 p.

A school report:

"Annual report, 1918-19, Alton Public Schools." Alton, Illinois: Board of Education, 1919. 156 p.

A course of study:

"Synopsis of courses of study, 1920-21, in public schools." Davenport, Iowa: Board of Education, 1920. 133 p.

Bulletins published by universities and other organized bodies:

MEYER, HAROLD D. "The rural playground." University of North Carolina Extension Bulletin, Vol. 1, No. 6. Chapel Hill: University of North Carolina, 1921. 78 p.

MONROE, WALTER S. (Edited by)<sup>2</sup> "Studies in arithmetic 1916-17." University of Indiana Studies, Vol. 5. Bureau of Cooperative Research Study No. 38. Bloomington: University of Indiana, 1918. 40 p.

HOLLY, CHAS. E. "Mental tests for school use." University of Illinois Bulletin, Vol. 17, No. 28, Bureau of Educational Research Bulletin No. 4. Urbana: University of Illinois, 1920. 91 p.

SHULTIS, FRANK W., and HELLMAN, J. D. "A study in addition." Colorado State Teachers College Bulletin, Series 16, No. 3. Research Bulletin No. 1. Greeley: Colorado State Teachers College, 1916. 16 p.

An article within a yearbook or any bound volume:

BALDWIN, B. T. "A measuring scale for physical growth and physiological age." Fifteenth Yearbook of the National Society for the Study of Education, Part I. Bloomington, Illinois: Public School Publishing Company, 1916, p. 20-21.

Miscellaneous material published by boards of education:

DEAMER, ARTHUR. "An experiment in acceleration." Fargo, North Dakota: Board of Education, 1918. 32 p.

"The arithmetical abilities of school children as shown by Courtis tests." Board of Education, Division of Reference and Research Bulletin No. 1. Cleveland, Ohio: Board of Education, 1917.

SEXTON, ELMER K. "Arithmetic survey in the public schools of Newark, N. J." Board of Education Monograph. Newark, N. J.: Board of Education, 1919. 30 p.

SPRAIN, CHARLES L., MOEHLMAN, ARTHUR B., and HARRINGTON, H. L. "The intermediate school in Detroit." The Detroit Educational Bulletin, Research Bulletin No. 6. Detroit: Board of Education, 1921. 39 p.

**General directions regarding final form of a manuscript.**<sup>3</sup> The paper should be of ordinary weight, of uniform size, 8½ by 11 inches, and only one side should be used for writing.

**Title page.**<sup>4</sup> The title of the manuscript should be written in all capitals and should be placed two inches or more below the top of the page. The author's name should appear in full, placed below the title, and usually preceded by the word "By" written just above. On the line below the author's name, his institutional connection and rank are often given. In a thesis, previous degrees, institutions,

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<sup>2</sup>If a reference is edited, compiled or prepared by someone in such a way that he cannot strictly be said to be the author, this fact should be indicated by placing a notation in parentheses immediately following his name.

<sup>3</sup>In the final typing of a thesis or of a report any rules prescribed by the college or by the department should be carefully followed. The directions listed here are representative of good form and should be observed except in those cases where they conflict with institutional requirements.

<sup>4</sup>Sample title pages for a course of study, a superintendent's report, and a bulletin are given in the appendix, p. 61.

and dates should be listed. In a term paper, the title and the author's name should be given as in the description above; the names of the course and instructor in charge may be added, preferably on lines near the bottom of the page.

**Table of contents.** When a report is divided into chapters with titles, there should be a table of contents which gives the chapter titles preceded by the Roman numerals I, II, III, and so forth. When subordinate headings are given they should be indented and may be numbered by Arabic figures or by capital letters. In case there are second sub-headings, further indentation should be used and the numbering may be done by means of letters, a, b, c, and so forth, or by Arabic figures enclosed in parentheses. The plan of numbering in the table of contents should be the same as that observed in the manuscript. When a report is not formally divided into chapters, it is frequently desirable to give a brief description of the contents. In all cases the table of contents should appear alone upon the page or even upon successive pages. If brief, it should be so placed as to give approximately equal spacing above and below the written material.

**List of illustrations, figures or tables.** The list of illustrations or figures should give the titles of the illustrations preceded by the numbers in Arabic as 1, 2, 3; the list of tables should give the captions of the tables preceded by the Roman numerals as I, II. In case a manuscript includes illustrations, figures and tables, separate lists should be given for each.

**Spacing.** The text proper should be double-spaced. Quoted material appearing in a separate paragraph may be single-spaced. The left-hand margin should be from an inch to an inch and one-half. The right-hand margin may be somewhat narrower.<sup>5</sup> The first line of a new paragraph should be indented at least one inch.

**First page of text.** The first page of the text may or may not contain the title of the manuscript. If the title is given it should be in capitals, and should be dropped about two inches from the top of the page. The word "Chapter," all capitals, followed by the Roman numeral, should appear on the line about three spaces below

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<sup>5</sup>In preliminary drafts of a manuscript it is well to have both margins somewhat wider. Some writers have found it desirable to triple-space the text in order to provide space for insertions and corrections.

the title of the manuscript. The chapter-title, usually in all capitals also, is placed on the line below the chapter number. The text of the chapter should begin an inch or more below the title. Each new chapter should begin a new page with the number and title written as described for the first.

**Order of paging.** The pages of the manuscript should be numbered consecutively, and assembled in the following order: (1) title page, (2) preface, (3) table of contents, (4) list of illustrations, figures, or tables, (5) introduction, (6) first page of text, and so forth. If it is necessary to add extra pages to the original, they may bear the number of the preceding page with letters added as 10a, 10b, 10c. If only a short passage is to be inserted, it may be pasted on the margin and folded in. In attaching inserts, pins or paper clips should not be used as they are apt to work loose. In case the insertion consists of a few words or of a short sentence, it is probably advisable to use a caret and write in the space above or in the margin. If certain pages are withheld or dropped for any reason, an indication of this should be given on a sheet bearing the omitted numbers.

**Form of footnotes.** In general the rules for complete sentence structure, punctuation, and so forth, apply to footnotes as to other portions of the manuscript. Abbreviations, however, such as "art." (article), "chap." (chapter), "fig." (figure), and "vol." (volume), not acceptable in the text, may be used.

Bibliographical references should be given in the regular form. (See page 34). When references to the same work follow each other closely and uninterruptedly on the same page, "ibid." (an abbreviation of *ibidem*, same) may be used. If, however, the page has been turned, it is necessary to repeat the entire reference or to use simply the author's name followed by "loc. cit." (*loco citato*, in the place cited) or "op. cit." (*opere citato*, in the work cited). For example:

BLOOMFIELD, MEYER. Youth, School and Vocation. Boston: Houghton Mifflin Company, 1915. On the same page, "ibid.;" on the following page "BLOOMFIELD, loc. cit." or "BLOOMFIELD, op. cit."

No one rule can be given for the numbering of footnotes. The best plan, probably, is to give consecutive numbers throughout a chapter, or throughout the entire report if no important divisions are made. Footnotes to tables or to figures should be placed at the foot of the table both in the typewritten manuscript and on the printed

page. Asterisks, daggers, and so forth are usually used to indicate footnotes in such cases where figures might cause confusion.

**Improvement of sentence structure.** The authors of this bulletin have found that, in the manuscripts submitted to them during the past four years, certain principles of sentence structure<sup>6</sup> are violated repeatedly and certain writers tend to make the same mistakes again and again. These manuscripts in most cases had been carefully prepared and revised and were considered by their writers as practically ready for publication. It is hoped, therefore, that a brief discussion of the principles violated, followed by illustrative sentences selected from the manuscripts referred to, may prove helpful to the average writer in detecting his errors and in making his own corrections. The violations have been classified somewhat loosely under the four general headings: Completeness of thought, Unity of thought, Clearness of thought, and Emphasis. There is some overlapping, of course, between these four governing principles of sentence construction and many of the sentences selected contain more than one violation.

**Completeness of thought.** Each sentence when read alone should convey a definite meaning. The writer because of his familiarity with the discussion frequently omits words and phrases which are necessary for the complete understanding of the sentence. Transitions often are so vaguely expressed that the insertion of a word, a phrase or even a clause may be found necessary.

**Unity of thought.** Each sentence should contain but one main thought. Violations such as unrelated ideas, confusing details, excessive coordination, and faulty subordination of the main thought especially should be guarded against.

**Clearness of thought.** "Clearness of thought is fundamental." The writer must make sure that his sentences cannot be misunderstood. Pronouns, participles, and other dependent words should refer without confusion to their antecedents. Indefinite use of "it" and "they" often causes ambiguity. Care should be taken that

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<sup>6</sup>For a complete discussion of sentence structure the following books may be consulted. The exercises for revision in these books especially are helpful to the writer who wishes to make a careful study of sentence construction.

GREEVER, GARLAND, and JONES, EASLEY S. *The Century Handbook of Writing*. New York: The Century Company, 1919. 228p.

MANLY, JOHN M., and RICKERT, EDITH. *The Writer's Index*. New York: Henry Holt and Company, 1923. 261 p.

related ideas are kept together and unrelated ideas apart, and that the idea which comes first in thought or in order of time is expressed first in the sentence. Misplaced adverbs such as "only," "even," "especially;" split constructions such as the awkward separation of subject and verb, the parts of a compound verb or the parts of an infinitive should be guarded against. Correlative conjunctions such as "not only, but also;" "both, and;" "either, or;" should be followed by the same grammatical construction. Those parts of a sentence which are parallel in thought should be given a similar grammatical form, as in this way the equal importance of the words, phrases or clauses is emphasized. Unnecessary changes in number, person or tense throughout the manuscript, and needless shifting of the subject, the voice, or the mode within a sentence should be avoided.

**Emphasis.** Emphasis in sentence structure is closely related to force in the manuscript as a whole. As stated before, it depends largely upon the arrangement of words and is difficult of attainment by the inexperienced writer. The emphatic positions in the sentence are the beginning and the end and these places should be reserved for important words and phrases. Sometimes a very important idea may be emphasized by being placed in a brief sentence by itself. In a series of words, phrases or clauses of different degrees of importance, the order of climax often is effective. The simplest and most natural way of emphasizing words or ideas is to repeat them. However, too much repetition is tiresome and tends to weaken rather than strengthen the written discussion.

**Illustrations of the improvement of structure.** The following sentences, together with a suggested reconstructed form, illustrate violations of the principles of sentence structure.

### **Completeness of thought**

In the following two sentences the words included in parentheses had been omitted so that it was necessary for the reader to look back through preceding paragraphs in order to find out the *types* and the *drill* referred to.

As regards the other types (developmental and informational) the same rule probably should apply, etc.

Although drill (in the recognition of words) is necessary, it could be relieved of some of its monotonous features by the introduction of various games.

Loose rambling sentence; main thought not emphasized.

In using all these methods the teacher should have the same aim in view as in all of her direction of pupil activity, that is, that most, if not all, that she does should stimulate the pupil's thinking.

Reconstructed form.

In the use of all these methods, as in the direction of all pupil activity, the teacher's aim should be to stimulate the pupil's thinking.

Sentences broken and generally not good because of awkward phrases and clauses, over-worked expressions, and so forth.

As a learner, the pupil may encounter difficulties. In assisting the pupil to overcome his particular difficulty the teacher may or may not encounter a difficulty. In any case the teacher's difficulty, although related to the pupil's difficulty, is not identical with it.

Reconstructed form. Two sentences combined and overworked words omitted in several cases; main thought emphasized.

In assisting a pupil to overcome a particular difficulty which, as a learner, he may have encountered, the teacher herself may or may not meet with difficulties also. Her difficulty, however, although related to the pupil's, is not identical with it.

Main thought subordinated.

In the measurement of handwriting and of silent reading it is extremely important that the rate of work be considered. It is also important in measuring abilities in a number of other fields.

Reconstructed form. Main thought emphasized by being placed in independent clause at end of sentence; all other ideas subordinated.

In the measurement of handwriting and of silent reading, as well as of abilities in a number of other fields, the rate of work should be considered.

Thought split by being placed in two sentences.

It is desirable that most answers be evaluated and criticised by the other pupils. This is one of the most useful plans that a teacher can follow to stimulate a critical attitude on the part of the class to lead its members to thinking.

Reconstructed form.

One of the most useful plans for stimulating a critical attitude on the part of the class and for leading its members to think is to have the answers evaluated and criticised by the other pupils.

Unnecessary details, awkward use of participles.

So doing encourages the duller pupils by giving them a good number of questions that they can answer satisfactorily or approximately so and by not overwhelming them with a large number of questions that are too difficult. Likewise it stimulates the brighter pupils by requiring them to use their superior ability.

Reconstructed form. Two sentences tied together and parallel construction used.

Thus the duller pupils by being able to give some satisfactory answers are encouraged, and the brighter ones by being required to use their superior ability are stimulated.

Awkward short sentences.

They are reproduced as contributed by the various teachers, except for minor editorial changes. Most of these were made in order to economize space.

Reconstructed form. Two short sentences combined to make one sentence by subordination of less important thought.

Except for minor editorial changes made usually in order to economize space, the plans are reproduced as contributed by the various teachers.

### Clearness of thought

Awkward separation of pronoun *which* and antecedent.

Usually there will be certain major divisions in pretentious reports such as a thesis, which will appear as separate chapters.

Reconstructed form.

Usually, in pretentious reports such as a thesis, there will be certain major divisions which will appear as separate chapters.

Qualifying clause tacked on at end of sentence.

The principal may act as director, provided he has had appropriate training.

Reconstructed form.

The principal, provided he has had appropriate training, may act as director.

Participial phrase separated from antecedent.

Monotonous reading is the zero of expression involving absolute uniform pauses.

Reconstructed form.

Monotonous reading, involving absolute uniform pauses, is the zero of expression.

Misplaced qualifying clause, relative pronoun omitted.

The criticism is frequently made that teachers tend to ask for unimportant details and to neglect the minimum essentials of a subject in formulating examination questions and therefore a pupil's performance on an examination is not a truthful index of the extent to which he has achieved the educational objectives set for him.

Reconstructed form. Qualifying clauses shifted and *that* repeated in order to bring out the force of parallel construction.

The criticism is frequently made that teachers, in formulating examination questions, tend to ask for unimportant details and to neglect the minimum essentials of a subject and that a pupil's performance on an examination, therefore, is not a truthful index, etc.

Faulty use of *that*; *which* should be used in those cases when the antecedent is a phrase or clause; also awkward repetition of *that*.

For example, when levers are studied in physics many of the pupils can undoubtedly call to mind applications of the principles of the lever that they have seen outside of school that are not exactly like those described in the textbook and which therefore naturally lead to questioning.

#### Reconstructed form.

For example, when levers are studied in physics many pupils can undoubtedly call to mind applications of the principles of levers which are unlike those described in the textbook and which therefore naturally lead to questioning.

Faulty use of *which*; when two clauses parallel in thought are introduced the construction should be parallel.

Occasionally it is permissible for the teacher to repeat a pupil's answer in part, at the same time elaborating it by adding details that she alone can give or which are not worth the time that would be required to elicit them from the class.

#### Reconstructed form.

Occasionally the teacher may repeat a pupil's answer in part, elaborating it by adding details that she alone can give or that are not worth the time required to be elicited from the class.

#### Split compound verb.

Around these central questions should be arranged the minor and more detailed questions which may, and sometimes must, to some extent, be thought out while the recitation is in progress.

#### Reconstructed form.

Around these central questions should be arranged the minor and more detailed questions which to some extent may be thought out while the recitation is in progress.

#### Split infinitive.

If a selection is so difficult as to greatly retard progress, etc.

#### Reconstructed form.

If a selection is so difficult as greatly to retard progress, etc.

#### Misplaced *only*.

In either case the cards should only be exposed for a brief period of time.

#### Reconstructed form.

In either case the cards should be exposed only for a brief period of time.

Failure to follow *not only, but also*, by the same grammatical construction.

Not only is it important that the teacher stimulate the pupils to ask questions but also that she direct them in the kinds of questions to be asked.

### Reconstructed form.

It is important not only that the teacher stimulate the pupils to ask questions but also that she guide them to formulate suitable questions.

Faulty shifting from parallel construction in the case of phrases that are similar in importance.

Lack of comprehension may be due to several causes such as a lack of a good method of silent reading, lack of practice in reading silently with care and not being sufficiently acquainted with the necessary vocabulary.

### Reconstructed form.

Failure to comprehend may be due to several causes such as lack of a good method of silent reading, lack of practice in reading silently with care and lack of sufficient acquaintance with the necessary vocabulary.

### Awkward sentence because of shifting in form of questions.

Such questions as how many years has the pupil been in school; what grade or grades did he skip; did he ever fail to be promoted, why; has attendance been regular or irregular, causes of irregularity; what is the attitude of the pupil toward the teacher and toward the school, etc.

Reconstructed form. Parallel construction emphasized by use of nouns throughout instead of *how many*, *why*, *what*.

Information such as: number of years the pupil has been in school; grade or grades skipped; failure of promotion and reason; attendance regular or irregular, and the cause of irregularity; attitude of the pupil toward the teacher and toward the school, etc.

### Awkward sentence because of varied construction.

The publishers now generally meet the approved standards in the matter of print, putting out books for very young children in large-sized type and for those who have been able to adjust their eyes to a more limited space smaller print is used.

Reconstructed form. Parallel construction used for the two clauses similar in thought.

The publishers now generally meet the approved standards in the matter of print; large-sized type is used in books for very young children and smaller type for those who are able to adjust their eyes to a more limited space.

Needless shifting of subject causing indefinite use of *them* and *their*.

The complaint frequently is made that when the children in the first grade take their readers home the parents in endeavoring to help their children often retard their progress.

### Reconstructed form.

The complaint frequently is made that when children in the first grade take their readers home they are often retarded in their progress because of help given by their parents.

### Needless shifting of subject.

Similarity between the word in question and other words should be pointed out and the pupil should be required to sound them out not once but many times. Wrong accents should receive attention in requiring the pupil to use the troublesome word as often as possible in his speech so that the correct form will become established.

### Reconstructed form.

The attention of the pupil should be called to the similarity between the unknown word and other words of which he knows the correct pronunciation. He should then be required to sound out the unfamiliar word not once but many times, and in order to establish the correct pronunciation he should be encouraged to use the troublesome word as often as possible in his speech.

### Awkward sentence, because of lack of consistency in construction.

An exception to this may be made in the case of timid pupils who would be dismayed by having their names called after a question had been asked and then being expected to answer at once. If such pupils are named first they are given a brief opportunity of collecting their thoughts and they are encouraged.

Reconstructed form. Two sentences combined and parallel construction used.

An exception may be made in the case of timid pupils who would be dismayed by having their names called after a question had been asked but who by being named first are given a brief opportunity to collect their thoughts and are thus encouraged to prepare their answers.

## Emphasis

Sentence weakened because subordinate clause is given emphatic position at end.

Frequently an abbreviated plan will be satisfactory, particularly after the teacher has had a year or two of experience.

### Reconstructed form.

After the teacher has had a year or two of experience, an abbreviated plan frequently will be satisfactory.

### Sentence weakened by indefinite use of *it*.

It, therefore, seems wise to use as the basis for comparison a mental age norm which takes into account the general intelligence of the pupil rather than a grade norm.

### Reconstructed form.

A mental age norm, which takes into account the general intelligence of the pupil, seems a better basis for comparison than a grade norm.

### Sentence weakened by tacked-on prepositional phrase.

Scientific investigation of the marking of examination papers, as usually done, has been sufficiently extensive to prove that the process is subjective, except in a very few instances.

### Reconstructed form.

Scientific investigation of the marking of examination papers has been sufficiently extensive to prove that, except in a very few instances, the process is subjective.

Main idea not emphasized because of its position in middle of sentence.

Inferior performances during the earlier part of the term will tend to be overshadowed and the teacher's estimates will be based largely upon their work during the last few weeks of the term unless the final estimate is based upon estimates made at intervals during the term.

### Reconstructed form.

Unless careful records have been kept throughout the term, inferior performances at the beginning tend to be overshadowed and the teacher's final estimate is based upon the work of the last few weeks.

Emphasis thwarted because main idea is expressed in a dependent clause.

There are reasons why a student of high achievements might make a low grade on a single examination.

### Reconstructed form.

For certain reasons students whose achievements are ordinarily high may make low grades on a single examination.

Sentence not incorrect, but in reconstructed form is made more emphatic by use of precise terms and by lack of repetition of "diagnosis."

There are of course no dividing lines between the three types of "complete diagnosis, partial diagnosis, and general diagnosis."

### Reconstructed form.

There are of course no sharply defined lines of demarcation between the three degrees of diagnosis, complete, partial and general.

## CHAPTER IV

### PROCESS OF WRITING A REPORT

In the Introduction it was asserted that a writer's purpose should be to guide a reader first to define the problem clearly and then to think about it in such a way that he will arrive at a solution which he will accept as dependable. A prerequisite for the realization of this purpose is clear and critical thinking about the problem by the writer.

These two principles should guide a writer in all stages of his work. He can accomplish little until he has clearly defined his problem and has thought out a solution which he himself is prepared to defend. Hence, in the early stages of his work his attention should be focused upon the prerequisite thinking. In improving the manuscript after a complete draft has been prepared, he should criticize it with reference to its service to a reader and should make such alterations as in his judgment will make the report more effective in fulfilling its purpose. In the revision of a manuscript, he should also criticize his thinking and endeavor to refine it.

**Definition of problem a preliminary step.** Preliminary to the writing of a report the writer should define his problem in his own mind. He should seek a clear understanding of the questions which he will attempt to answer. Usually he will find it helpful to set down these questions in writing, indicating the ones that are subordinate. The following questions are some which would be formulated in defining the problem: "What is the status of supervised study in secondary schools?"

What is the learning process?

What is supervised study?

What is its relation to the learning process?

What is the relation of supervised study to the recitation and to other phases of the teacher's work?

How is provision made for supervised study in the organization of the school?

What procedures do teachers employ in the supervision of study?

Are these procedures the same for all subjects? How do they differ?

What do we know about the merits of various administrative provisions for supervised study?

What do we know about the merits of procedures that teachers employ?

Many educational problems are related to other problems so that a comprehensive study of one leads naturally to a consideration of others. For practical reasons it is usually necessary, or at least desirable, for a writer to restrict his endeavors. In defining his problem he should indicate any restrictions that he intends to make. In the case of the problem above relating to the status of supervised study, he might limit his report to certain school subjects or to certain types of learning. Again he might limit it either to the administrative provisions for supervised study or to the procedures employed by teachers. Another type of limitation may be made with reference to the data upon which the report will be based. For example, a writer might specify that his answers will be based only upon data obtainable in published reports.

A writer has considerable freedom in setting the limits for his investigation, but he should bear in mind that the reader's evaluation of his work will depend in part upon the scope of the problem treated. If too much restricted, the reader will not place a high value upon the report. On the other hand, if restrictions are not mentioned he may feel that certain aspects, which he considers important but which the writer intentionally omitted, have been neglected.

**General plan of report formulated in an outline and brief.** A writer needs an outline for much the same reason that a contractor needs blue-prints and specifications for a building. The outline serves as a guide as he works upon the various details and enables him to stick to his problem.

After having clearly defined his problem the writer should prepare an outline indicating the major divisions of the report and their sequence. Under each of the major divisions he should formulate the more important sub-divisions until he has a reasonably complete plan of the entire report.

Although it is usually desirable for a writer to prepare a somewhat detailed outline in written form, this should be followed by a brief. An outline usually consists of separate words or short phrases which announce the topics or points that will be taken up in the report. A brief does more than this; it expresses in abbreviated form the principal statements to be made on each sub-topic or point. Illustrations showing the difference between an outline and the corresponding brief on the topic, "Written Expression as a Type of Learning," are given below.

## THE OUTLINE

- I. Relation of Organization of Ideas to Textbook Reading.
- II. Relation of Expression of Ideas to Learning.
- III. Clear Thinking and Expression of Ideas.
- IV. The Brief Compared with an Outline.
- V. Making a Brief.
  - (a) Principal points.
  - (b) Subordinate points.
  - (c) Revision.

## THE BRIEF

- I. Organization of ideas supplements the learning resulting from the reading of a textbook.
- II. Expression of ideas is an important learning exercise.
- III. Clear thinking is a prerequisite for effective expression. When one has clear ideas it is usually easy to express them.
- IV. A brief differs from an outline in that it consists of phrases or sentences which express ideas instead of merely words or phrases which announce topics about which something will be said.
- V. The steps in making a brief are:
  - (a) Clearly define your purpose.
  - (b) Formulate the principal and subordinate points of the discussion in complete sentences.
  - (c) Organize these so that they will present a satisfactory "trend of thought."
  - (d) Test each statement for precision and for its relation to the problem being considered.

**A carefully prepared brief an aid to writing.** A brief is even more helpful to a writer than an outline. It epitomizes his "trend of thought." In the making of a brief little writing is required, and he has an opportunity to concentrate upon thinking about the problem. Details may be neglected for the time being. A distinct service which the brief renders is due to the fact that it represents a more advanced stage of thinking about the problem than the outline.

**Final form of a report the product of revision.** A well-written report is seldom attained in the first draft, even though a detailed brief has been previously prepared. Most successful writers, even after years of experience, are accustomed to refine their reports through a series of revisions. Occasionally there is a writer who possesses unusual ability in organizing and expressing his ideas and who for that reason is able to produce a creditable report at the first writing. However, such persons are rare and they probably could produce better reports if they carefully revised their manuscripts.

In the following discussion, the two steps in the preparation of a report, writing the first draft and revision of the manuscript, will be treated separately.

## A. PREPARING A PRELIMINARY WORKING DRAFT OF A REPORT

**Criteria for good writing should be observed.** In preparing the first or working draft of a report all of the criteria for good writing should be observed so far as possible, but the writer's attention should be focused upon "trend of thought" and "evaluation of ideas." If a brief has been prepared, the general pattern of this "trend of thought" will have been formulated but the details are filled in during the writing of the first draft. As this is done, the writer may find it necessary to make changes in the organization of the report in order to secure an effective "trend of thought."

The evaluation of ideas is one of the most difficult tasks which a writer encounters. It is essential to eliminate all irrelevant statements from the report as well as to include everything that should be said. The inclusion of too many details will bewilder most readers and the omission of pertinent material will leave them in doubt. In preparing the first draft a writer should include material when he is not certain that it should be eliminated. Frequently the value of a sentence, a paragraph or even a series of paragraphs cannot be estimated until tried out in the manuscript. If later such material is found to contribute little or nothing to the discussion of the problem, it should be stricken out during the process of revision.

**Paragraph headings.** Carefully formulated paragraph headings are now generally used in textbooks, monographs, and bulletins to assist the reader in getting the general "trend of thought." They also assist the writer in that they provide a series of specific ideas for him to think and write about with the result that much greater unity and coherence are likely to be attained. Some writers have found it very helpful to formulate the paragraph headings for a report or for a major division of it before beginning the actual writing. If a somewhat detailed brief has been prepared, many of the paragraph headings can be taken directly from it. A good test in fact for paragraph headings is that when assembled they form a reasonably satisfactory brief.

It is unnecessary and frequently undesirable to have a separate heading for each paragraph. However, whenever a new unit of the discussion is taken up, there should be a paragraph heading which indicates to the reader the nature of the "trend of thought" immediately following and its relation to the problem being considered.

**Formation of new paragraphs.** In writing, a new paragraph should be formed whenever a new point is taken up or the "trend of thought" changed. If in doubt when writing the first draft it is well to form a new paragraph, as combinations can easily be made in the revision.

**Order of writing chapters.** In the case of a report consisting of several chapters it is sometimes desirable to revise the preliminary drafts of some of the earlier chapters before writing the later ones. Some chapters even may be left incomplete while other sections of the report are taken up. Some writers have found it undesirable to spend much time over tedious details in the first draft, because when working on details one tends to lose sight of the general "trend of thought." However, there usually comes a time when it is advisable to prepare a complete preliminary draft of the report in order that each part may be judged in its relation to all others.

**Physical form of working drafts.** In preliminary drafts margins of at least an inch and a half should be left at the top and on the left-hand side. The margins on the right and at the bottom may be somewhat narrower. Some writers find it desirable to have even wider margins. If the draft is typewritten, it should be double-spaced.

All tables except very short ones should be placed on separate sheets which contain no text so that they can be inserted easily in a revised manuscript. Failure to observe this rule will result in considerable waste of time in copying tables. In order to facilitate insertions and other changes, it is wise to begin each major division and many of the subordinate divisions on a new page. Even in the case of paragraphs it is usually desirable to begin a new page when the preceding paragraph ends in the last third of a page. An exception to this suggestion may be made in the case of a short paragraph which can be completed in the remaining space on the page. Sometimes it is helpful to leave spaces between paragraphs for insertions.

Only one side of the paper should be written on. If the writer feels that he should economize in the use of paper, he may use the reverse side of the sheets of a discarded manuscript, as the inconvenience due to writing on both sides of the paper in the same draft is almost certain to cause losses in time which much more than offset the small saving of paper. Incidentally, it may be remarked that a writer can save more paper by giving attention to the necessary

prerequisite thinking than by crowding margins or by writing on both sides of the sheet.

Correct bibliographical forms should be observed in the footnotes of preliminary drafts of a manuscript. Care also should be exercised to spell all words correctly and attention should be given to capitalization, punctuation, and other technical details of form. If this is not done, some of the errors appearing in the preliminary drafts are almost certain to persist in the final form of the manuscript.

**The position of footnotes.** In a manuscript, footnotes should appear on the line immediately following that in which the reference is made and should be separated from the text by triple-spacing or by horizontal lines drawn immediately above and below the footnote.\*

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\*For example, a footnote given at this point should be placed in this position and set off as indicated.

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An exception to this rule is made in those manuscripts when the typewritten copy is the only record preserved as in an unpublished thesis. In such cases the footnotes should be shifted to the bottom of the page in the final typing.

In the working drafts of a manuscript the footnotes should be indicated by an asterisk (\*). In the final drafts they are sometimes numbered consecutively throughout a chapter, as this practice simplifies the work of the printer. However, some publishers prefer to number the footnotes consecutively on each page.

## B. REVISING THE MANUSCRIPT

**Application of criteria for judging a report, the basis for revision.** The process of revising a manuscript involves applying the criteria given on pages 13 to 16 and then making the changes necessary to remove the deficiencies and errors revealed. Thus as a preliminary to the actual work of revision, a writer should become thoroughly acquainted with these criteria. However, he should not seek to apply all of them at once. Those given under "general structure," and "development, evaluation and organization of ideas" should receive attention first, as the time devoted to correcting details of structure and form will be wasted if later it is necessary to make major changes.

**Re-thinking required.** A revision of a manuscript is not accomplished by merely correcting rhetorical and grammatical errors and

misspelled words. The definition of the problem and its solution should be carefully retraced for the purpose of improving the "trend of thought," the development and evaluation of ideas, and the precision of statement. A writer should try to approach the task of revising his manuscript with the attitude of a critical reader. He should constantly ask: "Will the sentences and paragraphs which have been set down guide a reader to define the problem and to think about it in a satisfying way?" "Has anything been left unsaid which would be helpful?" "Has anything been said which is not useful?" "Is there any statement which a critical reader will be likely to criticize?"

Criticizing one's own writing is difficult because one is handicapped in adopting the impersonal and detached attitude which is necessary, but such criticism is essential in the production of good writing. One should therefore cultivate the art of criticism, particularly with reference to the development, evaluation and organization of ideas.

**Major reorganizations.** Frequently a writer will find it necessary to make certain major changes. The order of certain chapters may need to be interchanged. The position of a paragraph or of a series of paragraphs may need to be shifted. Some paragraphs which were written only after much effort may prove of so little value that they should be eliminated.

**Improvement of sentence structure.** Frequently sentences and even paragraphs need to be rewritten in order to secure more effective expression. Sometimes the desired result can be accomplished by varying one's diction. Qualifying phrases and clauses may be shifted, short sentences may be combined and in other cases long ones broken up. Unnecessary shifting of voice, tense or person should be eliminated. A writer should never hesitate to rewrite a paragraph if he feels that he can improve it. (See Chapter III for detailed suggestions and illustrations.)

**Correction of errors.** The final step in revising a manuscript is to correct all remaining errors of grammar, spelling and punctuation. Much of this work will have been done in the preceding stages of the revision, but there should be a final going over of the entire manuscript for the purpose of eliminating errors of any kind.

**Economy of time in revision.** The several phases of the work of revising the manuscript should be taken up in the order in which

they have been presented in the preceding discussion. As we have already indicated, time is likely to be wasted if some of the later phases are undertaken before the major changes have been made.

A writer should not consume time in unnecessary copying. Frequently scissors and paste can be used to advantage in making changes in the order of a report. Corrections can be written between the lines and on the margins. Insertions can be placed on separate pages with appropriate indications of their positions. It is a waste of time to copy a manuscript before a fresh draft is needed. However, when a critical reading of the manuscript is made difficult or impossible because the changes in it are distracting or confusing, the entire manuscript, except whole pages which are unutilized, should be copied in typewritten form if possible. A fresh manuscript often will stimulate a writer to higher levels of effectiveness in his writing.

## CHAPTER V

### PREPARATION OF MANUSCRIPT FOR PRINTER

In addition to the general directions regarding the Final Form of the Manuscript given in Chapter IV, the following suggestions<sup>1</sup> are offered in the hope that they will be of use to the writer in preparing his manuscript for the printer and in handling the proofs received.

**Necessity for care and consistency in manuscript submitted to printer.** Although all first-class publishing houses have their own rules of style and edit manuscripts accepted for publication, it is well for each writer to prepare his manuscript with due care and to keep in mind that all corrections and alterations made after the material has been set in type cause both expense and delay in publication. If a linotype machine is used, as is generally the case, the insertion or change of a single letter or punctuation mark causes the resetting of an entire line, and a change in a word or phrase may involve the resetting of the paragraph from that point.

It is especially important that the author be consistent throughout his manuscript, in the use of capitals, hyphenated words, punctuation marks, spelling of proper names, and so forth. He should remember that his copy probably will be distributed among several compositors, all working on it at once, and no one of them may know the particular rules of style which are being observed by the others. The proofreader may catch and point out inconsistencies, but in many cases they are overlooked and remain to trouble both the writer and his readers ever after. A good exhortation to keep in mind is, "Do not let your manuscript go to the printer until you have written every word just as you wish it in type, and until all matters of

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<sup>1</sup>These suggestions refer only to the simple directions that should be known to every writer who submits his manuscript for publication. For more detailed instructions the following publications may be consulted:

MANLY, JOHN MATTHEWS, and POWELL, JOHN ARTHUR. *A Manual for Writers*. Chicago: The University of Chicago Press, 1922. 225 p.

*Manual of Style*. Chicago: The University of Chicago Press, 1911. 118 p.

*The Manuscript*. 440 Fourth Avenue, New York City, New York: John Wiley and Sons, Inc., 1924. 52 p.

capitalization, punctuation, paragraphing, and so forth have been brought into consistency and uniformity throughout, and set your face steadfastly against changes in the proof which are not essential to correctness of statement or to consistency of style."

**Marking of manuscript for printer.** Although it is not necessary for the individual writer to give much attention to printers' details, he should understand enough of the technical side of printing to know those things which he can do in order to bring about closer cooperation between himself and the publisher. In the majority of cases the writer will not have to decide regarding the size of type to be used for the body of the manuscript, especially if the report is to appear in a periodical or in a bulletin series. He should, however, indicate his preferences regarding the use of large or small capitals, italics, or bold-face type. For this purpose the following technical marks, preferably made in colored ink, should be used:

To indicate that large capital letters are desired, draw three lines (≡≡≡), and to indicate small capitals, draw two lines (≡≡) under the letter or word to be capitalized.

To indicate italic type, underscore with a straight line (———).

To indicate black or bold-face type, underscore with a wavy line (~~~~~).

If the author wishes certain headings or selections to appear in larger or in smaller type than the text proper, he should draw a line indicating that portion and mark "larger type" or "smaller type" in the margin. Usually a difference of two points<sup>2</sup> is made in the size of type selected for such purposes. Thus, if the text proper is in ten or eleven point type the quoted matter, footnotes, and so forth would appear in eight or nine point; the headings, chapter titles, and so forth, in twelve or even in fourteen point.

If the author desires certain sections to be placed on a page alone, or to begin a new page, he should direct the printer accordingly by marking the exact place in his manuscript and writing "new page" in the margin.

The approximate positions of the tables, graphs, and illustrations should be indicated on the manuscript. It is best to have such

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<sup>2</sup>The term "point" is the standard of measurement for type, the unit being 1 point or  $\frac{1}{24}$  of an inch. For example, the text of this bulletin is printed in 10 pt. type, 16 words to a square inch; the footnotes and quoted passages are in 8 pt., 23 words to a square inch.

material follow, as soon as possible, the first reference made to it in the text. The printer may have to make slight shifts in fitting the material into the page, but the writer should mark in the margin "Table I about here," or "Table I as soon as possible after this point."

If for any reason a word or a section of the manuscript has been marked out which the author wishes to be replaced, he should draw a line around the deleted portions and mark "stet" in the margin.

Illustrations, such as drawings, photographs or graphs, for which zinc etchings, half-tone plates or other processes of photo-gravure are necessary for printing, should be placed on a separate sheet and the caption or title written on the back. Any general directions regarding the printing should be written on the back of the sheet also.

The table of contents should be sent with the manuscript to the printer, as it furnishes him with information regarding the main and the subdivisions and enables him to arrange to better advantage the type in the body of the manuscript.

Extra care should be taken to let the printer know exactly what is desired when anything is irregular. Specific directions, in such a case, should be written in the margin.

When the author has completed the marking of his manuscript, he should wrap it carefully, or enclose it in a large envelope, never roll it, and send it by insured mail.

**Correcting of galley-proof.** Usually the first proof sent by the publisher is in galley form, a sheet about three and a half times as long as the page to be used. This should be read carefully for errors and necessary changes. The practice of having the original copy read aloud to the writer as he corrects the proof is strongly recommended for he is then able to give his entire attention to the printed page and can be more alert for any omissions or mistakes which the printer may have made, or for any alterations which he may feel necessary.

All changes and corrections should be made on the margin of the proof, using standard proofreader's marks,<sup>3</sup> and the point at which the correction is to be made indicated in the text.

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<sup>3</sup>See the books referred to on page 56 for such marks.

When it is necessary to change a word or phrase, if possible the new material selected should be approximately the length of that taken out so that it may be fitted into the same space. The addition or deletion of a word may necessitate the resetting of an entire paragraph from that point. If the corrections are too numerous it is better to rewrite the passage, as the printer often can set new material in less time than he can reset that involving a great number of alterations.

Questions which the proofreader has indicated on the margin should not be disregarded. They are to call attention to some point which in his judgment should be answered, an obscurity, an inconsistency, or perhaps only a doubt as to the desirability of the material specified. The question may be answered by either "yes" or "no," or the correction made. It should not be ignored, however, as in that case the proofreader may assume the responsibility of making changes as he sees fit.

The proof bearing the author's changes and corrections should be returned to the publisher with the original manuscript. If for any reason the author thinks it is wise to see another galley-proof he should mark on the returned copy, "See Revise." All proof should be returned as quickly as possible so as to avoid delay in publication.

**Correcting of page-proofs.** Assuming that all the alterations desired in the original manuscript have been made on the galley-proofs, the author should keep in mind especially the following items as he carefully reads his page-proofs.

Make sure that all changes indicated on the galley have been properly made.

See that no lines, especially at the top and at the bottom of each page, have been dropped from the galley.

See that chapter titles, running heads, (headings that appear at the top of every page) are correct in every detail.

Check the page numbers throughout the manuscript.

Be sure that footnotes are properly placed and correctly numbered.

Make sure that tables, graphs and illustrations, especially those requiring a separate page, are properly placed and numbered.

Read carefully the title page, which usually is sent for the first time with the page-proof, to see that all information regarding degrees, profession and rank has been accurately given.

Check the page numbers in the table of contents, lists of tables or illustrations, and so forth.

If no revised page-proofs are desired, mark the copy "O.K." or "O.K. with alterations," and return it, together with the galley-proofs, to the printer. The author's work is then finished, and he can await, with what patience he possesses, the publication of his manuscript.

## APPENDIX

*Note:*—Because of the fact that very often title pages of various kinds of reports and of bulletins published privately omit certain important items, several acceptable title pages of courses of study, superintendents' reports, surveys and bulletins in a private series are given. If at all possible, a title page should contain all of the items of information listed on page 36 so that it will be possible for the reader not only to identify the publication but also to purchase a copy.

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SCHOOL YEAR, 1921-1922

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Teachers College, Columbia University  
New York City

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QUINCY, ILLINOIS

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ELEMENTARY SCHOOLS  
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*September 1, 1913*

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BULLETIN NO. 25

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BUREAU OF EDUCATIONAL RESEARCH  
COLLEGE OF EDUCATION

## REPORTING EDUCATIONAL RESEARCH

By

WALTER S. MONROE

Director, Bureau of Educational Research

and

NELL BOMAR JOHNSTON

Assistant, College of Education



PRICE 50 CENTS

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1925

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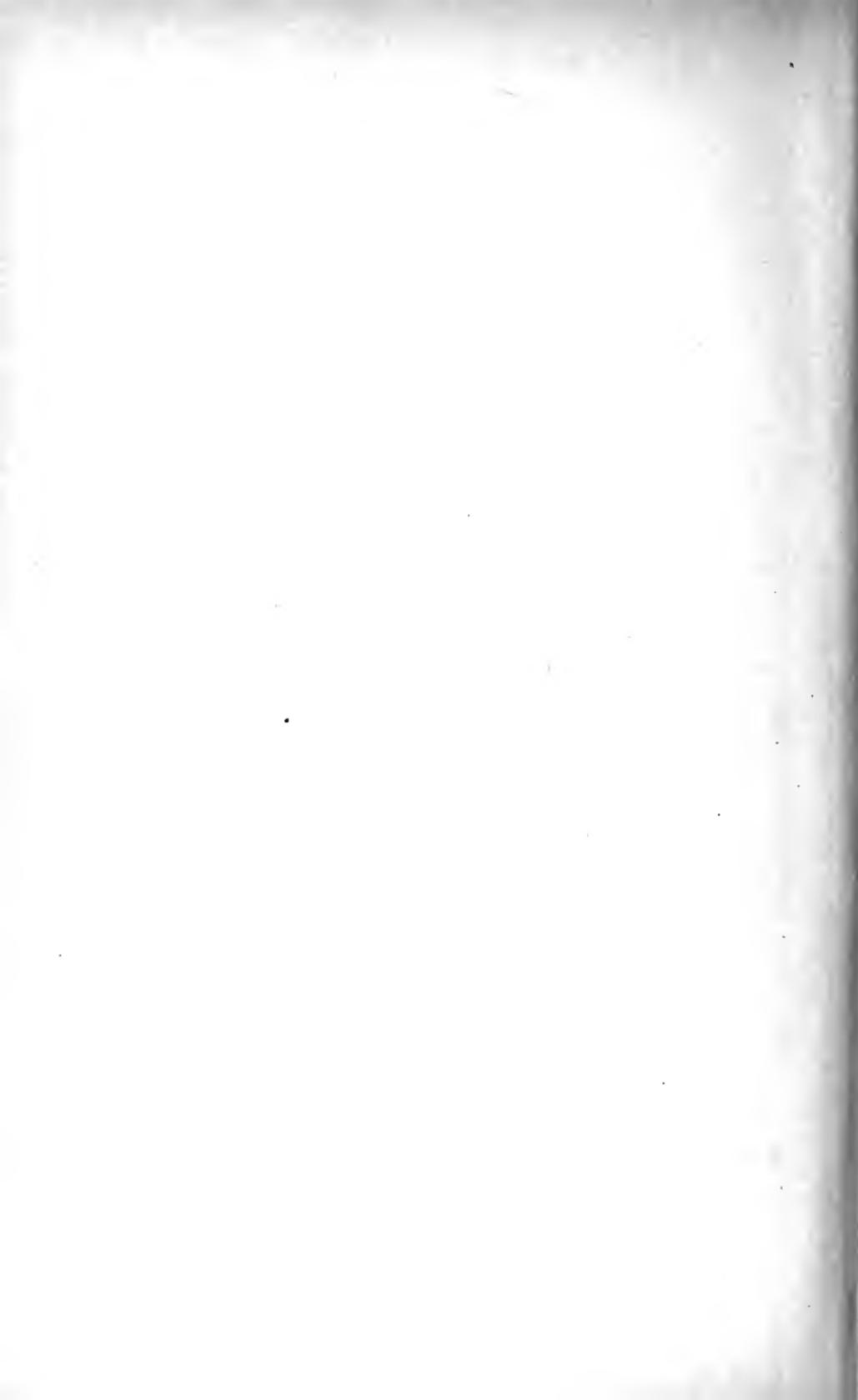
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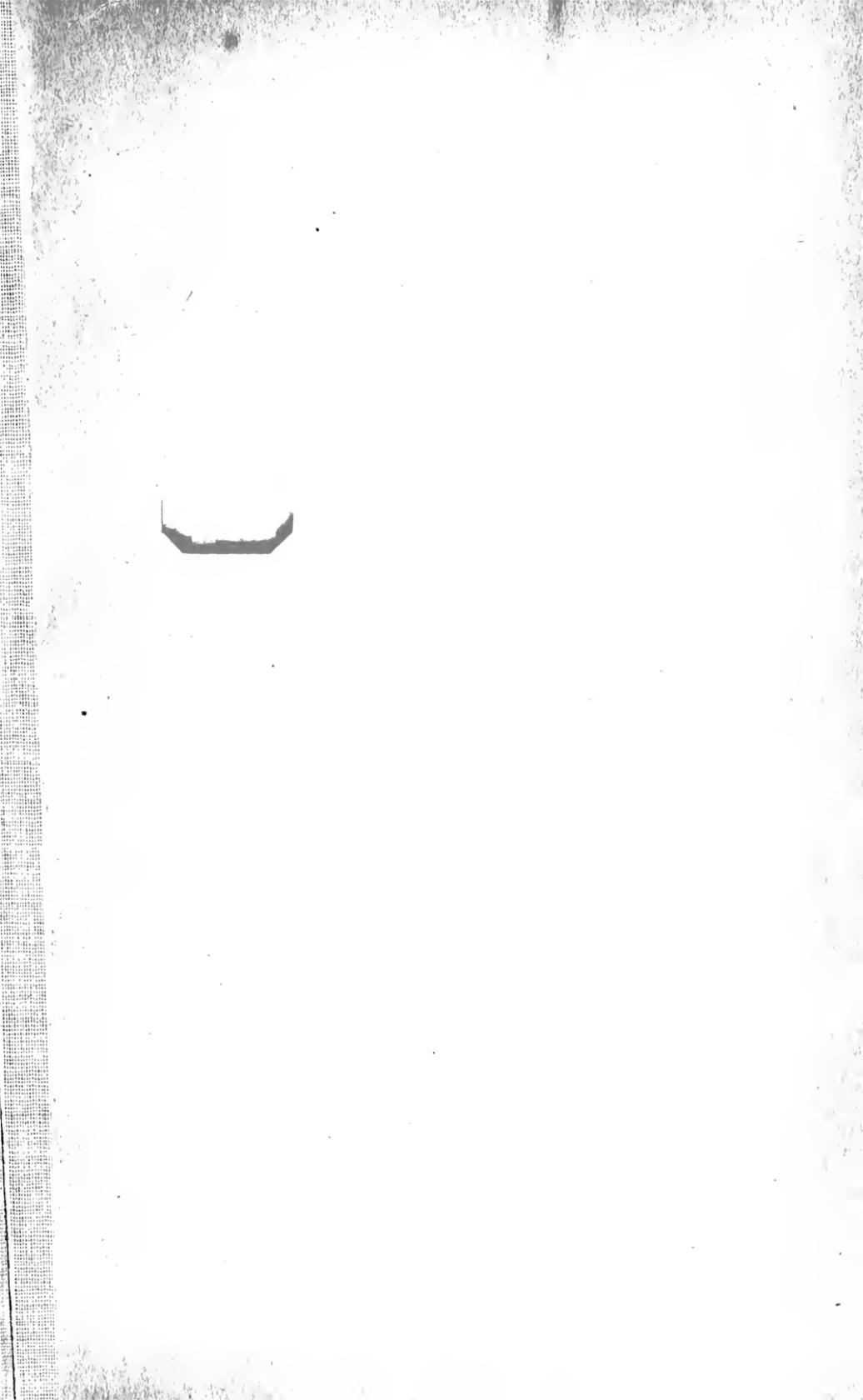
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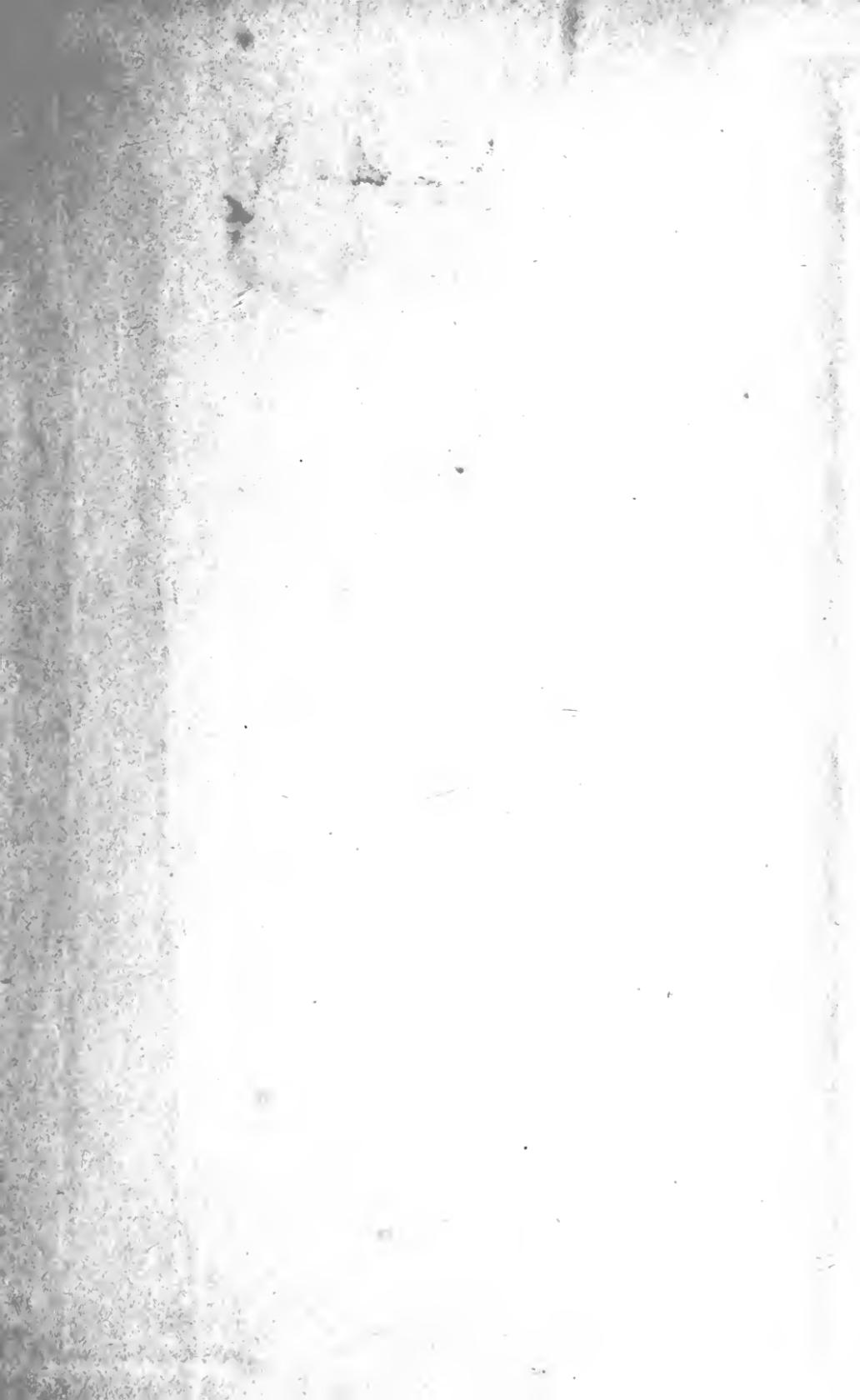
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