

*New!*

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# ENGINEERED WRITING

A Manual for Scientific, Technical  
and Business Writers

## SECOND EDITION

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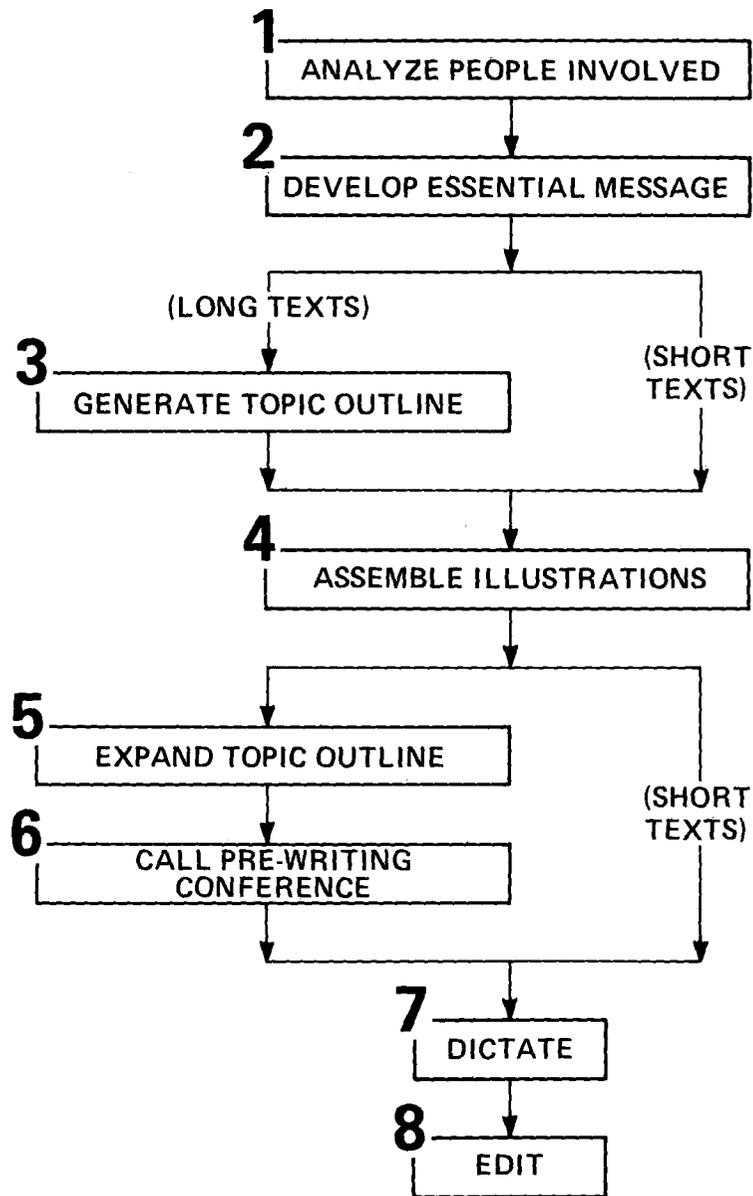


Figure 2 The Engineered Writing System

## Part II How to Organize the Message: The Murray System

Of all the sacred cows which graze in the field of medical writing, perhaps the most sacred is The Outline. . . . To work around a rigid skeleton, as an inviolable framework, is stultifying.  
—Lester S. King, MD\*

### A NEW APPROACH TO PRODUCT DESIGN

Although the idea of engineering a product is familiar to technical writers, the concept of engineering the design of a document (Fig. 2) appears to be a novel one. There is, however, little difference in the approach to planning: whether you are designing a hospital, a computer program, an offshore drilling platform, or a scientific report, you must consider practical use, efficiency, economics, timing, saleability, and esthetics.

In common writing practice, these factors have been disregarded in favor of tradition. On-the-job writers have typically followed the suspense-filled "Biblical" approach—going from Genesis to Revelations—illustrated in Fig. 3. This triangle represents the structure of a formal report, but the same suspenseful pattern appears in letters, memos, and speeches.

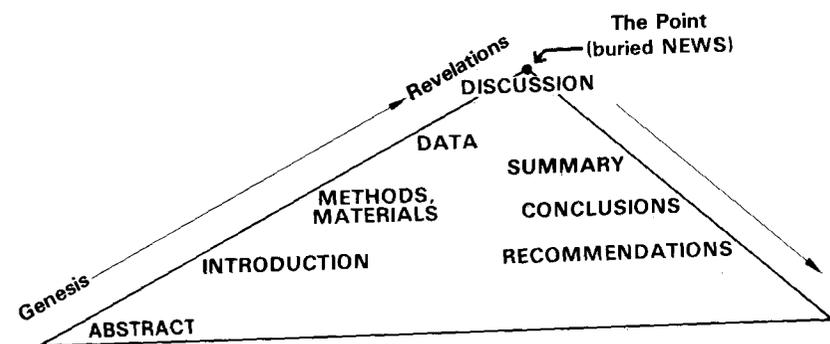


Figure 3 The Biblical or suspense format.

\*Lester S. King, MD, and Charles G. Roland, MD, *Scientific Writing*, AMA Publications, 1968, p. 64.

With a ready-made model like this, organization requires no judgment, no common sense, and very little intelligence. Anyone can do it. If readers do not understand, then the subject must be over their heads. The problem is theirs.

There *are* occasions to choose the Biblical format. A special problem (pp. 43–46) may necessitate some degree of suspense. Mystery stories, novels, and most histories certainly cannot “get to the point” on Page 1. Moreover, some professional journals still insist upon the suspense pattern, and we have to manage with it if we want to be published in those journals.

But in scientific, technical, and business writing, the indiscriminate use of the suspense format for organizing ideas has been wasteful and ineffective. Documents cost far more time, money, and effort than they need to; they fail to mirror the careful work that is the subject of the writing; and after several laborious revisions, they are thrust on a reader who must embark on a treasure hunt for the useful ideas, armed only with a yellow Hi-Liter® pen.

To find the main point of a document organized in the traditional manner of Fig. 3, we may be forced to search through a series of off-the-shelf units:

**Abstract:** Often misused to describe the shape of a report or article (like a narrative table of contents) rather than its essence. Called a **descriptive abstract** (Fig. 4A), it will feature passive verbs such as “are discussed,” “is presented,” “are reviewed,” and “is described.” An **informative abstract** (Fig. 4B), intended primarily for technical readers who may go on to read the body of the document, gives the essence of the entire text. An **executive summary** (Fig. 4C) focuses on information of importance to managers, who probably will not read the entire document.

## NOT THIS —

### A. DESCRIPTIVE ABSTRACT

Following an analysis of the need for better written communications, an eight-step method for organizing any kind of nonfiction written or oral presentation is described by this book. Many examples are included. Also presented are numerous techniques for improved writing at the sentence and paragraph levels, with discussions of the problems of communication between North American scientists and business people and their correspondents overseas. Finally, problems peculiar to the last quarter of the 20th century are reviewed.

## BUT THIS —

### B. INFORMATIVE ABSTRACT

Based on the pattern of good dialog, the Murray System enables writers to deliver their message clearly and concisely with less effort, but with maximum impact on the chosen audience. The method has from three to eight steps, depending on what is being written:

- |                               |                                 |
|-------------------------------|---------------------------------|
| (1) Analyze people involved   | (5) Expand topic outline        |
| (2) Develop essential message | (6) Call pre-writing conference |
| (3) Generate topic outline    | (7) Dictate complete text       |
| (4) Assemble illustrations    | (8) Edit and polish             |

To improve one's writing at the sentence level, the most important technique is to use verbs effectively, preferring active verbs. At the paragraph level, help the reader with summarizing topic sentences and transition words and phrases.

## OR THIS —

### C. EXECUTIVE SUMMARY

The eight-step Murray System for engineering the design of reports, letters, memos, and speeches enables users to improve readability while cutting text length, speeding up the writing and approval of in-house documents, and cutting costs. Organizing techniques for on-the-job writers and editing techniques for supervisors make written communications more efficient for both writer and reader.

Productivity increases are achieved through:

- A conversational method of organizing ideas, based on the familiar pattern of normal dialog that we all practice. This logical approach helps writers to get to the point at all levels of a document, reducing length by as much as 75 percent (in lengthy texts) without sacrificing desirable content.
- Efficient review and approval procedures that (1) eliminate needless recycling and rewriting of drafts, with a corresponding boost in writer morale, and (2) reduce management review and approval time (by up to 95% in large corporations).
- Editing techniques for both authors and supervisors, based on courtesy, common sense, and an adequate knowledge of grammar and current usage.

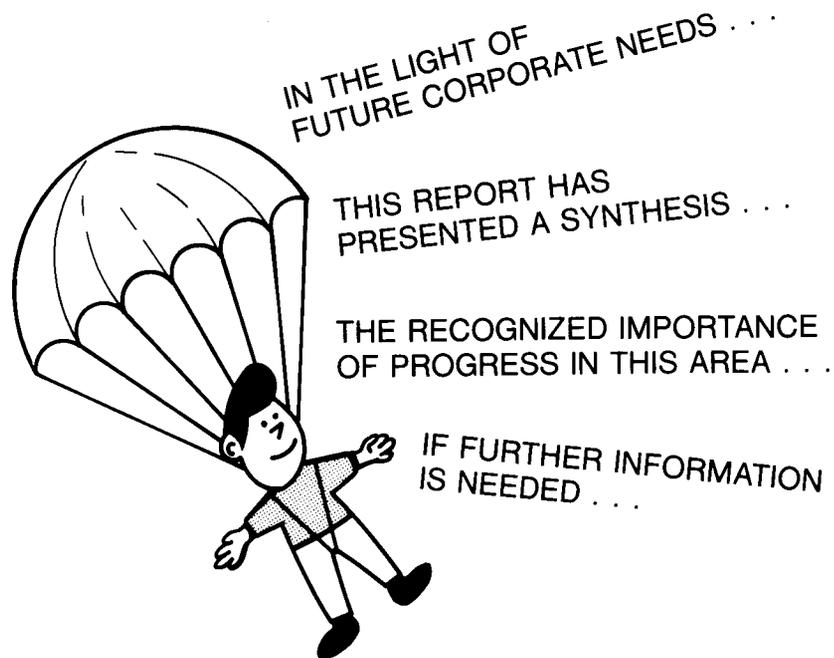
Figure 4 Three types of abstract for this book

**Introduction:** May include a lengthy description of the "Problem," even if the *reader* originally submitted the problem; "Objectives," although they may already have been attained with spectacular success by the time the report appears; "Background" or "History of the Project," whether useful to the reader or not; and "Previous Work," including failed attempts and dead ends.

**Methods/Procedures; Equipment/Materials:** Although the reader commonly wants to know what the writer found out, and only secondarily *how* he did it, these sections of a report often do their part in delaying the real NEWS.

**Results/Discussion/Data:** A detailed description of work done and data generated, the interpretation of the data, etc. Look at Fig. 3 now. You have labored up the slope of the triangle to find the NEWS; it is probably buried here somewhere. If you are lucky, it will be plainly stated. At worst, it will only be implied.

**Summary, Conclusions, Recommendations:** At last we have come to the real NEWS—or have we? After sprinkling crumbs of information all along the way, is the author likely now to come



right out with a plain and simple statement of his NEWS that could be moved to Page 1 to stand alone meaningfully? Almost never.

**And a "Parachute":** Reluctant to stop abruptly, the timid writer will add a parachute sentence (or paragraph) to let the reader down gently.

Books have been written to help readers get efficiently through texts organized like this. A good example is *How to Read a Book*.<sup>\*</sup> It has sections entitled "Finding the Key Sentences," "Finding the Arguments," and even "Finding the Solutions" in order, as the authors point out, "to determine the message" [italics ours]. That we actually need such help is a sad commentary on the state of written communication.

### THE ENGINEERED TEXT IS DIFFERENT

Well-engineered documents turn that traditional outline upside down, highlighting the key sentences, the solutions, the message—the writer's real NEWS. As suggested in Fig. 5, main points are elevated above detail, not only at the beginning of the document, but also at the beginning of each of its major parts.

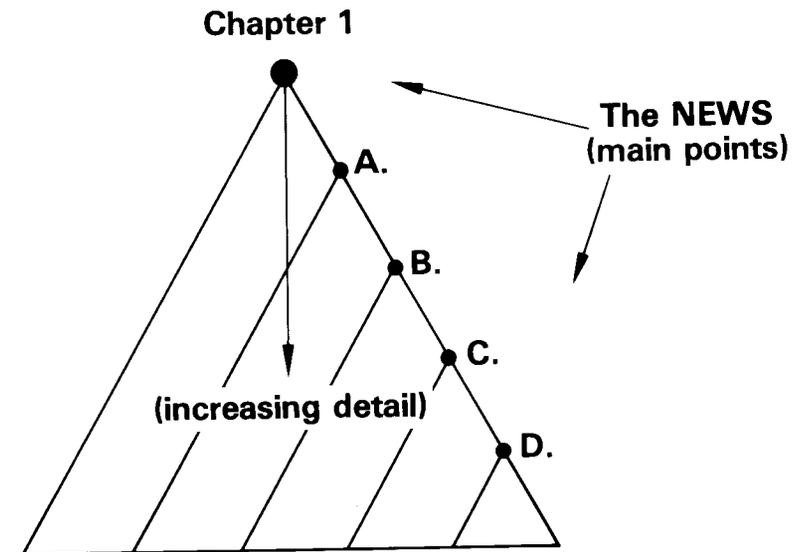


Figure 5 A reader-oriented approach to organization.

<sup>\*</sup>Mortimer J. Adler and Charles Van Doren, *How to Read a Book*, (New York: Simon & Schuster, 1972).

Whether writing a letter of a few paragraphs or a formal report of many chapters, we begin at the peak of the triangle (Fig. 5); we do not force the reader into a long climb to reach the NEWS.

The benefits of this direct approach are worth reviewing:

- The method reduces text length by as much as 75 percent (in long reports) without sacrificing desirable content.
- It eliminates rewriting and recycling of drafts (for an obvious boost in writer morale).
- It reduces review and approvals time up to 95 percent in large organizations; this improves morale among managers as well.
- It cuts production costs substantially.
- And it is easy to apply to all kinds of nonfiction writing.

The Murray System involves from three to eight steps, shown in Fig. 2 and explained in the sections that follow. You will find examples of how the procedure is applied in Steps 2, 3, and 5, with a complete example for a long report in Appendix B.