MODERN TECHNICAL WRITING

FIFTH EDITION

Theodore A. Sherman

Simon S. Johnson
Oregon State University

Prentice Hall, Englewood Cliffs, New Jersey 07632

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Library of Congress Cataloging-in-Publication Data

Sherman, Theodore Allison
Modern technical writing / Theodore A. Sherman, Simon S. Johnson.
—5th ed.
p. cm.
Includes bibliographical references.
ISBN 0-13-597584-0
1. Technical writing. I. Johnson, Simon S. (.). II. Title.
TI 852 1990
808'.0666—dc20 89-37098
CIP

Editorial/production supervision: Louise B. Capuano
Interior design: A Good Thing, Inc.
Cover design: A Good Thing, Inc.
Cover photo © 1988 by Lester Lefkowitz
Manufacturing buyer: Mary Ann Gloriande

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

ISBN 0-13-597584-0

Prentice-Hall International (UK) Limited, *London*
Prentice-Hall of Australia Pty. Limited, *Sydney*
Prentice-Hall Canada Inc., *Toronto*
Prentice-Hall Hispanoamericana, S. A., *Mexico*
Prentice-Hall of India Private Limited, *New Delhi*
Prentice-Hall of Japan, Inc., *Tokyo*
Simon & Schuster Asia Pte. Ltd., *Singapore*
Editora Prentice-Hall do Brasil, Ltda., *Rio de Janeiro*

Preface

The fifth edition of *Modern Technical Writing* consists of four parts: "Technical Writing Concepts"; "Technical Writing Applications"; "Technical Correspondence"; and "Handbook of Fundamentals." This overall plan is the same one that was used in earlier editions except that material has been updated or rewritten to keep abreast of current practices of the better writers in government, education, science, and industry.

The logic of this arrangement is that some of the various skills needed for technical writing can best be acquired if first studied separately and then put to use in the writing of reports and other longer pieces. The sections are written, however, in a manner that permits readers or teachers to consider them in a different order if they wish.

Users of previous editions will note a number of changes. These changes include the use of chapter headnotes to call attention to important points and a wider use of lists and bullets. Another major change is the incorporation of information growing out of word processing technology. When use of computers calls for special consideration, as in manuscript preparation and in information retrieval, sections have been devoted to the subject. Elsewhere, the material has been added to the discussion without further comment. Throughout, changes were made to emphasize that writing is a process rather than a single act. In all parts of the book, changes were made whenever scrutiny revealed an opportunity to make the book more effective or more accessible.

The many specimens of technical writing found throughout the text were produced by workers in the field for use in government, science, or industry. They are shown in facsimile to let readers examine a cross-section of documents actually produced by men and women in fields they themselves may enter. No specimen is the product of professional technical writers or artists. They are the work of professional people who must write as part of their jobs but whose main occupation is not writing. Because they are actual samples rather than examples manufactured to illustrate this book, they do not always follow exactly a form or practice recommended in the text. The differences

allow readers to see a range of possibilities, to see how individual writers solved specific problems. They reflect the real world of work rather than the theoretical world of the classroom.

The specimens were obtained from many sources, and those that are included were chosen because they seemed to represent best what is being produced. Geographically, they come from places as far apart as Alaska and New York. They constitute only a small percentage of those reviewed. Examples not included were also valuable in that they too were examined with care so that what the book says about contemporary technical writing would continue to correspond with current practices. Also, they were a source of subject matter for exercises and assignments that would be most like tasks the student would be doing on the job. The exercises are designed to focus attention on specific points covered in the chapters. They consist of new material except when material in previous editions illustrated points so well that no satisfactory replacement could be obtained. The writing assignments generally are designed to allow readers freedom to use material from their own special interests to practice the concepts covered in the chapters.

Throughout the book—in the text, assignments, exercises, and specimens—material will be found that concerns subjects that have emerged as vital in recent years not only to students but to people throughout the world. Ecology, pollution, and energy are typical examples of these interests.

Experience has shown that *Modern Technical Writing* has four kinds of readers. The largest group is students in business, technical, or scientific fields. They are people who do not plan to make a living from writing or editing, but who recognize the important part clear communication will play in their professional lives. A second group is students who plan to make a career in technical writing itself. These students realize that the need for communication in all professions has created a growing field with great opportunities for anyone willing to pursue them. A third group of readers is men and women already established in careers who wish to improve their communication skills through course work, seminars, or reading on their own. Finally, an increasing number of people in countries throughout the world have found *Modern Technical Writing* useful in learning the best methods of communicating the technical information of their fields to audiences in many languages. We have considered each of these groups during the writing of this edition. We have also kept in mind the many teachers who select this text for use in their classroom.

Part I opens with a brief introductory chapter that discusses the importance of writing in the world today and how readers might best profit from studying this text. The next chapter, "The Writing Process," shows how each of the other elements in the book fits into the process itself. The discussion focuses on such elements as reader analysis, drafting, rewriting, and editing—subjects that are suffused throughout the text but need to be discussed for themselves. Because organization is perhaps the most important problem in all writing, the

book next addresses that subject, covering the latest theory and providing methods that writers can use to achieve an organization best suited for their particular readers and purposes. Style—organization and presentation of information at the sentence and paragraph level—continues the discussion of process and the concern for reader adaptation. The chapter on "Technical Format and Mechanics" that follows covers matters of form that are peculiar to technical writing or appear in it frequently.

The chapter on "Basic Patterns of Technical Writing" performs a dual function. It can provide writing assignments that may be used while the study of organization, style, and mechanics is still under way. More important, it explains the patterns that are common to much technical writing. An understanding of these patterns can make writing of any kind easier. Part I concludes with treatment of the "Visual Presentation of Technical Information," a subject that has taken on increasing importance as the readership of technical material has become more international.

The emphasis in Part II remains on the application of the concepts and skills treated in Part I. The section opens with an introductory chapter on "Principles of Technical Reports," which explains the purpose and importance of technical reports and covers the ways technical reports are evaluated. As part of the discussion, the chapter explains how writers analyze a report-writing situation and then carry it out. It concludes with a discussion of emotional factors that technical writers must consider to help ensure the success of a document.

"Information Gathering," a chapter new to this edition, was added at the request of teachers who use the book. It contains a comprehensive introduction to library research, including the use of electronic sources. It also covers the procedures and difficulties in gathering information through observation, interviews, questionnaires, and surveys. The material has been organized to be useful both to students and to people on the job who want to review their research methods.

The next chapter, "Technical Reports: Form and Purpose," discusses a number of reports—not because we believe any special classification system exists but to show examples of the wide range that exists in actual practice. Included in the chapter are examples gathered from many disciplines across the United States so readers can analyze actual reports for themselves. The examples include memoranda, letters, separate short reports, and reports that were part of longer works. The next chapter, "Elements of Technical Reports," provides an extensive discussion of the elements that report writers use to convey information successfully. Examples of each element can be found in the specimen reports. The rationale for such an arrangement grows out of the belief that after first examining samples, readers will find the discussion of the elements more meaningful, but individual readers may wish to study the elements before turning to a detailed look at the samples.

Proposals are covered in a separate chapter because of their importance to so many organizations and endeavors. Two sample proposals have been in-

cluded, one generated at a research institution and the other from an international consulting firm. Both may be readily understood by a wide range of readers.

The discussion of "Technical Articles" is undertaken next because the writing of articles is often a step taken after the reports about a project have been completed. The subject is covered in a separate chapter to emphasize its importance in the dissemination of technical information and the importance writing articles may have in a professional career. The assignments at the end of the chapter provide a step-by-step guide for the beginner to the process of writing and publishing an article.

"Oral Presentation of Technical Information" covers a part of reporting technical information that is extremely important to all professional people. Its recommendations can be of substantial assistance on the numerous occasions when readers will present their ideas before a small group or a large audience. The audience analysis worksheet in Assignment 1 provides a guide to help both experienced and beginning speakers organize their information for effective presentation.

Part III, "Technical Correspondence," is both a continuation of the section on applications and a separate treatment of letter writing for professional men and women. The chapters reflect the increasing reliance on the telephone for communication. The continuing importance of the written record, however, dictates a thorough examination of the forms. Because job hunting remains a concern for students and older workers alike, "Employment Letters and Résumés" examines the problems at length.

The "Handbook of Fundamentals" has been revised for currency. It is intended primarily as a quick reference for writers doubtful about some matter of usage or effectiveness of writing in general. Its stance is liberal, but traditional taboos are pointed out because they are still observed by many people.

The number of persons who have helped with previous editions and revision has been so great that listing them all would be impractical. A particular debt of gratitude, however, is owed each of the following: Sandra Ridlington, editor, Sea Grant Communications, Oregon State University; Carl English-Young, editor, CH2M Hill; Laurel S. Maughan, coordinator of bibliographic instruction, William Jasper Kerr Library, Oregon State University; Allen S. Janssen, dean (emeritus) of the College of Engineering, University of Idaho; John Banks, president of the National Steel and Shipbuilding Company of San Diego; Ronald Hurlbutt, manager of the Traffic and Engineering Department, Oakland, California; William Smith, city engineer, Moscow, Idaho; Diane Kireilis and Elbert G. Melcher, Rocky Mountain Center on Environment; Robert Larson, Ken Seaman, and Harry Sloffkiss, National Assessment of Educational Progress; Edmund E. Tylutki, associate professor of biology, University of Idaho; Kenneth D. Briggs, Pacific Missile Test Center; Kiku Hayashi, The Boeing Company; W. L. Garner, Sandia Laboratories; and A. Morrie Craig, Oregon State University School of Veterinary Medicine.

In addition, corporations and governmental agencies were extremely cooperative: Army Corps of Engineers; Asphalt Institute, College Park, Maryland; Boeing Company; Brooklyn Union Gas; Chevron Chemical Company; Douglas United Nuclear Industries, Inc.; DeKalb Agrisearch, Inc.; Earl V. Miller Engineers, Phoenix, Arizona; General Electric Company; International Snowmobile Industry Association; Division of Transportation Engineering, Montgomery County, Maryland; National Assessment of Educational Progress; National Steel and Shipbuilding Company; Traffic Engineering Department, Oakland, California; The Potlatch Corporation; Rocky Mountain Center on Environment; 3M Company; T. R. W. Corporation; U.S. Gypsum; U.S. Environmental Protection Agency; U.S. Forest Service; University of Washington College of Engineering; and Washington State University College of Engineering Extension Service.

The faculties of the University of Idaho and Oregon State University have given encouragement and cooperation at all times.

Some readers of this book were aware that Theodore Sherman died before publication of the previous edition. Ted was a delightful companion with a marvelous sense of humor—he wrote librettos for amateur operettas in the style of Gilbert and Sullivan—a fine colleague, and a coauthor beyond compare. We had worked so long together, and his thoughts and spirit so pervaded the entire text of the fourth edition that I kept his name even on the preface. His spirit pervades this edition as well, especially those elements that have long found favor with users, but I must now take responsibility and blame for the contents. I hope this edition meets with favor, both with long-time users of the book and with people using it for the first time. With that thought in mind, I wish to thank those readers who have used previous editions and have written to offer suggestions for retentions and changes. I would like to invite readers of this edition to make additional comments. This book belongs to all those throughout the world who have found something of use in it; I trust they will continue to find it useful.

Simon S. Johnson

Contents

Part I

TECHNICAL WRITING CONCEPTS

Chapter 1

Introduction

- Your writing ability will have a great effect on your career
- People in all technical professions spend much of their time writing
- Writing helps clarify thinking
- Technical writing requires special skills and knowledge
- You can use your communication skills to help improve the human condition

To profit by a study of technical writing you will find it necessary to recognize one fact at the outset: Writing will be a part of your work that can have a great effect on your career. If you now have a job, you may already appreciate the importance of writing in your daily activities. Skill in writing must be regarded as a professional tool, ranked equally with your other professional skills and knowledge. If you think of writing as something to do on the job rather than only in the classroom—a skill to convey information for practical use by an employer or client rather than just to demonstrate academic proficiency—you will have motivation for improvement. If you are motivated to make a genuine effort to improve your writing, you have every reason to expect that the time you devote will contribute to a successful career.

No one who has been exposed to the comments of employers can doubt that the preceding statements are justified. In articles, public addresses, and personal remarks, executives at every level in industry and government have long been stressing the value of good writing. For example, in a personal letter