
DUTIES, ETHICS, AND PROFESSIONAL WRITING PRACTICES

PERSONAL CONTACTS take place between authors and many other contributors throughout the Survey publication process. Ideally, these contacts are harmonious and mutually beneficial. Interpersonal frictions sometimes arise, but even strong personal differences can yield positive results when everyone observes courtesy, good will, and professional respect. Some authors tend to regard reviewers and editors as punctilious adversaries. Punctiliousness, in fact, is a vital part of the review process that helps transform rough-hewn manuscripts—some replete with minor mistakes and inconsistencies—into paragons of accuracy, style, and proper usage. Conversely, some reviewers wrongly see their participation as an onerous task standing in the way of their own creative research.

The responsive author is receptive to suggestions and recognizes that other members of the group reviewing publications share responsibility to the Survey and to the users of Survey reports. Similarly, good reviewers, like good editors, are tactful and constructive. Their function is to assist authors, not censor them. Authors should also remember that their reports, though bearing their names, are not their personal property. The Survey provides salaries, office space, laboratories, libraries, and other facilities, and the results of all its research are in the public domain.

MANY CONTRIBUTORS

You as author are only the first of many people who contribute to the finished report. Only your name appears on the title page, but each report in final form is the product of a largely anonymous and unsung staff of typists, manuscript coordinators, reviewers, editors, illustrators, cartographers, printers, and distributors. As the chief contributor, you assemble the facts and theories and have a personal interest in committing them clearly to print. The Survey encourages that interest and recognizes it as essential to the high morale and personal esteem of the organization. Authors should understand, however, that the Survey has a statutory interest in all its manuscript reports and may use them as it sees fit or may require that they be modified. The Survey rarely exercises this prerogative except to ensure that a report is scientifically sound, reaches the proper

readership, and reflects credit on the Survey and the author. To these ends, your colleagues, supervisors, and staff associates all bring their specialized knowledge, skills, and judgments to bear on your report.

PLAGIARISM ESCHEWED

In using the works of other writers, you as author must scrupulously avoid any hint of plagiarism. You must take great care to duly cite the ideas and publications of other workers in the subject area, and you must clearly attribute any direct or indirect quote from another author in a way that leaves no doubt as to its source. The name of the author and year of publication should unmistakably precede or follow the quote. For citations from longer papers, or of specific data, inclusion of page numbers is a courtesy to both the author and the reader. (See p. 234 for citation style.) In quoting from others, you should use only original source material or should cite exactly where the quote came from.

ACKNOWLEDGMENTS

Acknowledgments in reports by Survey authors can generally be divided into three groups: (1) acknowledgments to outside agencies or persons, (2) acknowledgments to previous investigators for borrowed data used by the author, and (3) acknowledgments of assistance by colleagues. These groups are discussed at length in the current Survey Manual.

Outside agencies. Cooperative relationships are explicitly acknowledged by the Survey, generally in the introductory part of the Survey report. Any formal cooperative agreement must be concisely cited on the cover and title page of a book report and on appropriate margins of separately published maps, charts, and atlases. In reporting on areas outside the United States, take care to avoid offending the sensitivities of coworkers of the host country: Double-check such matters as correct spelling of names and use of personal titles. Carefully avoid criticizing local customs and facilities. Remember that mapping standards differ from one country to another, both as to accuracy and as to appearance. Any non-Survey financial support should be acknowledged.

Borrowed data. Authors must have permission, preferably written, to use borrowed data or conclusions and should properly credit data or conclusions of collaborators. Permission from private companies to publish confidential information, such as mine maps, well logs, and production data, should be indicated in the manuscript or in attached documents. Company names and trade names of equipment or material are avoided in Survey reports unless special reasons require their inclusion. Photographs should not show company names or trade names.

Discussions of subject matter outside the Geological Survey's field of competence require citation of authorities. For example, statements giving the limits of chemical constituents acceptable for public water supply should cite appropriate State or Federal standards; statements concerning matters of waste disposal, or limits of such constituents in irrigation water, should also cite authoritative sources such as boards of health, the U.S. Public Health Service, or the Environmental Protection Agency.

Colleague contributions. Every Survey investigation and report has benefitted from suggestions of the author's colleagues as a routine part of their work, and such assistance ordinarily need not be recounted unless it is noteworthy. If acknowledgment is made, an unadorned statement of specific aid will help fix responsibility and will probably be more appreciated by the recipient than an effusive expression of gratitude. "John Smith gave me access to his unpublished data" is more informative than "I am extremely grateful to John Smith for his unstinting help and generosity during the compilation of this report." Analyses, computations, and identifications of minerals and fossils, by either Survey or non-Survey personnel, must be credited. Such credits should appear in the tables, lists, or statements in which the work is reported, not in the formal "Acknowledgments" paragraph. This credit is courteous, honest, and mandatory. It also helps place responsibility.

Photographs other than your own should be acknowledged. Credit the photographer, by name, in the caption of each such illustration.

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Other assistance. Family members, typists, editors, illustrators, librarians, and others contribute in many ways to the production of nearly all reports. Extraordinary assistance by such persons warrants a

credit line, but letters of appreciation addressed to the employees' supervisors are generally more suitable and more immediately profitable to the individuals than mention in a technical paper. Thanks for help from family members can be expressed in personal ways.

For acknowledgments and other occasions of personal reference, the preferred form is "Joseph P. Smith" or "Mary M. Smith" the first time the person is referred to; thereafter, "Smith" or "Mr., Mrs., Miss, or Ms. Smith" are preferable. Usage should be consistent; don't use "Smith" in one paragraph and "Mr. Smith" in the next. Military and political titles ("Colonel," "Senator") are used in Survey papers, but academic and professional titles ("Doctor," "Professor") are ordinarily omitted.

DEDICATION OF U.S. GEOLOGICAL SURVEY PUBLICATIONS

According to the U.S. Geological Survey Manual, Section 503.2.6,

It is not the policy of the USGS or of the Federal Government to dedicate its publications. Only two USGS publications have been dedicated to an individual. These exceptions, Professional Papers 1249 and 1250 describing the 1980 eruptions of Mount St. Helens, were dedicated to David A. Johnston who lost his life during the main eruption. This exception was made following a commitment by the President of the United States, and may remain a unique occurrence.

Other appropriate ways to honor individuals are available, including permanent awards to USGS employees for their accomplishments, and memorial volumes published by leading professional societies. Outside publications are especially fitting because they encourage non-Geological Survey scientists to participate in the memorials.

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Besides any general acknowledgment of a book or article in the text, credit for each borrowed illustration should be shown on the illustration or in its caption. The preferred credit line is "From Smith (1948)" if the illustration is reproduced essentially as originally published, even if the format or style is slightly changed or the illustration is redrafted. Use "modified from" if the substantive content is changed in any way. "After" carries a more nebulous connotation that implies use of an idea but not a direct copy. "Adapted from" is equivalent to "Modified from" but is not preferred usage. Photographs taken by you as author are not credited; uncredited photographs are assumed to be your work. Individual credit may be given, however, if the report has multiple authorship. Borrowed photographs or other illustrations should be

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COPYRIGHT TRANSFER

Because the subject of copyright transfer to outside journals sometimes causes confusion, the following form clearly states the position of Government (Survey) authors with respect to copyright. An author may sign and attach this form to any forms received from outside journals. The work of Survey authors cannot be copyrighted and, therefore, copyright cannot be transferred.

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I (we) certify that the article named above was prepared as part of my (our) official duties. The article is thus in the public domain and cannot be copyrighted.

Signature(s) of U.S. Government author(s):

WRITING SKILLS

Scientific research of itself seldom involves much writing practice, but practice is essential for acquiring writing skills, and the only way to learn is to write. Good writers are made, not born. Survey scientists who strive to write well soon learn that what is good for the Survey is good for themselves. Few scientists achieve professional stature through the spoken word; a surer way is through high-quality publications.

Right or wrong, the research and academic worlds tend to equate your fitness for advancement with the size of your bibliography, chiefly because published reports are easy yardsticks of growth and productivity. Even the rare scientist who lacks the normal need or desire for financial advancement finds that professional recognition, election to fellowship, and attainment of high office in scientific societies are based more often on published writings than on other accomplishments.

Mere practice alone, however, will not assure writing proficiency. Broad reading of good literature helps, although good literature and scientific reporting are not necessarily synonymous. The many published grammar primers, technical manuals, style guides, glossaries, word-usage guides, dictionaries, and writers' handbooks also will help sharpen writing skills. Most bookstores have several to choose from. Writing classes are profitable and can be enjoyable, particularly those that offer one-to-one criticism.

Thoroughly understanding your subject matter is essential to committing it clearly to writing. So is clear thinking: The Survey geologist who reported "limestone blocks the size of a large woman's purse" evidently was unaware that a small woman might carry a purse of the same size.

See the section on "Suggestions as to expression" (p. 124) for hints to enhance writing skills; many examples are taken from actual Survey manuscripts. Every Survey author can profit from studying those examples.

ACCURACY

Vague writing has no place in the scientific literature. Accurate reporting is a self-evident obligation, ethic, and good professional practice—accurate reporting not only of all scientific data, but also of such basic things as arithmetic and geographic locations. Simple typographical errors in numbers and directions are easily overlooked in proofing. If the text says a site is just northeast of Pine Mountain, the location on the map should be nowhere else. Section numbers, townships, and ranges should be carefully checked. The total thickness of a stratigraphic column should equal the total of individual beds, and if the total is a rounded one, that fact should be stated. Mineral analyses and their totals should agree. All these things seem obvious, but they are common sources of error, and if incorrect, they reflect on the credibility of the entire report. A point is reached in the proofing of a manuscript where every word and every figure must be individually checked by the author. No other procedure assures accuracy.

QUOTATIONS

Famous remarks are very seldom quoted correctly.

Simeon Strunsky

Authors are responsible for the accuracy of quotations. Because errors are sometimes made in copying printed matter, the typed copy of every quotation should be carefully compared with the original. Quotations ordinarily are not verified in editorial review.

Short quotes may merely be set within quotation marks; longer ones may be indented or set in different type sizes as determined by the editor. In quoted material, the exact words of the original should be preserved. It is not necessary to reproduce details of printer's style, such as indentions, type size, and spacing, or typographical errors or incorrect spelling. Capitalization, punctuation, or grammatical errors need not be preserved either, except where the preservation of quaintness or exactness of form is desired. Titles of references should be quoted without change except to correct typographical errors. Any other word considered to be in error should be reproduced exactly, followed by "[sic]," which indicates that the erroneous word or passage is precisely reproduced.

Italic in the original should be retained. If you italicize a word or phrase that is not italicized in the original, this change should be indicated immediately after the italic by a bracketed phrase such as "[italic mine]." Omissions within quoted matter should be indicated by three asterisks (* * *); comma and final period are placed inside the quotation marks. Other punctuation marks are placed inside the quotation marks only if they are part of the material quoted. To indicate quotations within quotations, use double quotation marks for the original quotation and single quotation marks for the quotation within the original.

Ordinarily, quotations from foreign languages are translated into English; if a quotation in the original language is desirable, both the original and a translation should be given. Set the translation in brackets.

PROMPTNESS

Author and supervisor together share the responsibility for promptness in completing reports on time. A researcher is obligated to complete a report of an investigation as soon as possible after the close of the research. The obligation is not fulfilled until the results are published. Supervisors share the obligation. Employees taking on new assignments, moreover, will gain professional stature if they reserve

sufficient time in their new schedules to complete any unfinished reports on time.

An employee who plans to resign is obligated to complete and submit all such reports before leaving the Survey. Furthermore, even though an author completes the report before leaving, and thus satisfies that obligation, reputations may be endangered and the Survey may be embarrassed if unpublished information gained during Government employment is used in private employment. To assure the highest personal and ethical conduct at all professional levels, the Survey relies on the honor and scientific integrity of its employees.

PROFESSIONAL DISAGREEMENTS

Factual comparisons in reports should be so worded as not to offend or cause wrong impressions. Authors who must relate their findings to those of other workers will do well to concentrate on clear, logical presentations of their own subjects; references to other writers and quotations from other writings should contribute to the presentation without distracting the reader. Expressed opinions, especially about writers who have erred or who hold contrary views, should be tactful and dignified. If you find a mistake in a predecessor's work, you may tingle with self-satisfaction, particularly if your predecessor is an eminent scientist, but before gloating in print, consider the state of knowledge and the working conditions when the mistake was made. Consider also the reminder of Lucan, still valid after 2,000 years: "Pigmies placed on the shoulders of giants see more than the giants themselves."

CLARITY

Scientific thought is exact and direct, and scientific writing must therefore be accurate and to the point. * * * [Any] writer's first duty is to be intelligible. * * * [Plain] writing is not something beneath the plane of endeavor of the scientific investigator * * *. It is our ambition that the reports of the Geological Survey shall be written in the language of the people.

George Otis Smith

In 1973, Survey Director V.E. McKelvey added to the plea of George Otis Smith:

[Policies, plans, and decisions concerning] resource adequacy, strip-mining, land use * * *, powerplant siting, preservation of coastal wetlands, wilderness area withdrawals, offshore drilling, * * * surface and subsurface waste disposal, air pollution and [other problems] that are central issues in the United States today are * * * made by legislators, social scientists, lawyers, and others who understand and represent people, but who do not understand

[scientific] language. [The information required to solve these problems needs] to be in plain terms and in forms in which it can be used effectively * * *.

In our efforts to increase the use of resource and land information in planning and decision-making, we have found that one of the most difficult problems is how to bridge the information gap between scientists and nonscientists * * *. The earth scientists, on the one hand, and the planning and urban decision-making community on the other, despite the best efforts of both, have been unable to totally bridge the gap between them.

Suggestions to Authors stresses the need for clarity. To ensure effectiveness, reports must not only be accurate but must be so clearly and simply written that they are easily read and understood by their intended readership. To write clearly one must also think clearly; what could the author have been thinking who wrote that "most of the data on recent sediments in intracratonic basins are surrounded by Archean rocks"? The more esoteric aspects of earth sciences published nowadays cannot be written in layman's language, but no matter how abstruse the message, the purpose of writing remains the same: to tell somebody something, to report data accurately, and to present information clearly for contemporary and future readers.

The more concise a scientific report, the better. Henry David Thoreau once wisely said that life is frittered away by detail. A lean, crisp report is processed faster and more cheaply than a rambling one and when published is read and understood by more readers. An adequate but brief manuscript demands more of an author's energy and skill than a fat-filled production. Concise writing demands practice.

After a manuscript is completed it should be set aside to cool. Resist the urge to rush it along. Then go over it afresh to delete needless words, phrases, sentences, and paragraphs. Even then, a space-conscious journal editor may demand significant shortening ("condensation"), but if you condense your manuscript before submitting it, processing will be more rapid and less painful.

Technical aspects of earth science cannot be easily described in lay terms, despite the admonition of George Otis Smith, but there is no place in Survey writing for showy and stilted writing. If communication is to be effective, it must be understood, and chances of being understood are enhanced if ideas are expressed as simply as possible in the fewest possible words.

NAME CONTINUITY

Authors should decide early in their careers how they want their names to appear on reports and

maps, and hence in bibliographic citations. Confusion will be avoided if the name form is not changed later. Name continuity not only eases the work of librarians and bibliographers but also enables fellow scientists and other researchers to find all the works by an author in one place in reference lists, bibliographies, card catalogs, and computer files.

Women scientists should consider the desirability of retaining one name for professional purposes throughout their careers, even if they change their surnames by marriage. A hyphenated combination of wife's maiden surname and husband's surname ("Jane R. Jones-Smith") is not recommended because it causes bibliographic problems in reference lists and catalogs.

Use of the first name and middle initial is preferred. In the event of name similarities, a distinctive combination of names or initials is advisable. The author's choice in this matter will be respected. Regardless of the form of the name on the title page of a report, Survey bibliographic citations traditionally give only the initials unless there are (1) name similarities or (2) only one given name (see "Preparing References" section, p. 234).

THE SCIENTIST AS VOLUME EDITOR

WANTED: Scientist doing Nobel-prize-level research to edit proceedings volume for major conference. Must be charming, creative, determined, diplomatic, enthusiastic, firm, organized, patient, persuasive, resourceful, tactful, witty. Needed for about one year. No stipend. May have to suspend own work.

Despite these requirements for sainthood, many scientists take on the task of assembling and editing a group of papers for publication in a single volume. If you find that you have agreed to be scientific editor of such a volume, the following guidelines may help you through the trying times ahead.

The most immediate discussions will be with your employer, whose support is vital to your undertaking. If you are between projects when you accept the editorship, you probably can find time to dovetail your own work with editorial tasks, but if your workload is steady, you and your employer must agree on an equitable allocation of your time.

Next, determine beyond all doubt that the sponsoring organization has a firm commitment—both financial and professional—to publish the volume. Be sure that the sponsor places complete confidence in you as editor and will honor your actions for meeting all objectives, which is to say that the sponsor will provide the money to publish and will back up your decisions.

If your employer is also the sponsoring organization (such as the Survey), you may need to iron out a few more wrinkles before you begin. Be sure everyone in-

volved shares the same expectations and perceptions of the project and agrees on priorities and scheduling.

To set up a schedule for the volume, you must decide fairly early (1) the intended readership, (2) the intended publication date, and (3) the publisher. You may have to decide the tone of the volume—informal, as might suit a workshop, or formal, as might fit an international congress. You must assess what funding, resources, and people will be available, and you must set up a system for keeping track of everything. Some elaboration on these topics may be instructive.

From the anticipated publication date, you can work backward to the present with the publisher/printer to get an idea of what deadlines the completion date requires. List everything you can think of that has to be done, and estimate how much time will be needed to complete each step. Then enter the deadline date for each step.

For example, if the papers presented at a meeting in October are to be published in time for the next year's meeting and you start planning in early September before the meeting, you'll have about 12 months from beginning to end. The following hypothetical publication schedule lists many of the tasks to be done in that time (although the order can vary), working from the target date backward.

Keep in mind that even the best of schedules is subject to human and postal frailties. In large measure, your editorial efforts will be devoted to anticipating problems and devising ways to avoid them.

HYPOTHETICAL PUBLICATION SCHEDULE

In the following schedule, read up from "Project Begins." Estimated time is how long a task might take from the beginning of one step to the beginning of the next. Be realistic. Allow time at each step just to handle and record the arrival or departure of material, which in aggregate can be surprisingly long. Note also who will be responsible for each task. The order of steps may vary, and many steps may need to be added.

Myriad questions will spring up as you think about the schedule. The following questions are samples of what you might consider:

How will papers be solicited and selected?

How many papers might be anticipated? (The projected cost of the volume will affect its length and content.)

How long should each paper be?

	Date	Estimated time
PROJECT ENDS		
Thank-you notes written to all-----	9/30	
Copies of volume are delivered-----	9/30	
Volumes are packaged and shipped--	9/15	} 2 weeks
Volume is printed-----	9/1	
Volume is delivered to printer-	8/15	2 weeks
Volume is prepared for printing (final corrections and layout)-----	8/8	1 week
Copy for printer is complete to your satisfaction-----	8/1	1 week
You approve all papers--	7/1	} 4 weeks
Authors return final version to you-----	6/1	
You review papers and send to authors-----	4/1	8 weeks
You receive papers---	2/1	} 8 weeks
Initial tasks:		
Instructions are sent to authors who write papers-----	10/14	} 14 weeks
Publisher is selected and consulted-----		
Deadlines are set-----		
Kind of author copy is decided upon-----		} 6 weeks
Volume design and format are settled		
You accept the editorship-----	9/1	
PROJECT BEGINS		

What about the number and size of tables and figures in each paper?

Should authors follow one style guide (such as STA) or will consistency within each paper suffice?

Will author-prepared art be accepted (or required), or will artwork be redrafted? Redrafted by whom?

How about peer review for each paper? Who will do it and how long will it take?

How do you visualize yourself as scientific editor—as a technical advisor or as absolute authority?

What influence might electronic media have on the project? For example, will a paper on a word-processing disk be acceptable or useful?

Will the papers be camera ready or typeset?

What guidelines will authors require and when?

Will you adhere to your deadlines? Will you reject papers that fail to meet them, or will you slip your schedule for the slowest author? How much flexibility is possible without disrupting the entire schedule (and irritating the prompt authors)?

Will you be concerned with how the volume is marketed and (or) distributed?

A few answers crucial to the success of the project may require agonized soul-searching on your part. Take the matter of deadlines: If you set reasonably firm deadlines (give or take a week, say), how will you respond to the creative excuses of an anguished colleague whose paper you know will be late despite your exhortations?

Once the schedule is set and major decisions are made, the time has come to compile names, addresses, and phone numbers of everyone on the project, particularly authors. Any format is fine that can withstand heavy use and can be easily modified. Authors will constantly crave news about the project (their own papers in particular) and will demand much attention, despite your more pressing duties. As Survey geologist Tom Fouch suggests, try to calm their anxieties about every 3 weeks with brief progress reports, news, or instructions. Your final communication will be the thank-you notes you write to everyone involved in the project. Be sure to send one to yourself—you will have earned it!