CBE Views 3:1, Spring 1980

Author's Editors: Catalysts of Scientific Publishing

BY MARTHA M. TACKER, PH.D.
Scientific Author's Editor
West Lafayette, IN

The scientific author's editor is a catalyst. Just as a chemical catalyst does not determine what the products of a reaction will be but facilitates the reaction, the scientific author's editor does not determine what an author's message will be but facilitates communication of it.

Author's editors in the academic scientific community have traditionally worked quietly behind the scenes, so quietly that some of you may have never heard the term *author's editor,* much less known that such editors exist. One factor that has perpetuated this low profile is an uncertainty shared by authors, journal editors,* and author's editors about the acceptable role of the author's editor in scientific publication. Authors and journal editors can benefit greatly from the efforts of a skillful author's editor (1, 2), but it is becoming increasingly clear that the contribution of author's editors will not reach its full potential until an acceptable role is defined and the contributions of author's editors are recognized. From a practical standpoint this role must be mutually satisfactory to authors, journal editors, and author's editors. Such mutual satisfaction will be best reached by thoughtful participation of these three groups in defining the role.

To initiate a thoughtful discussion, this article presents my view as an author's editor of the role of an author's editor. I offer my ideas and opinions as a "rough draft" ready for editing to reflect your needs, experiences, and opinions. I hope *CBE Views* will become a forum for this discussion.

A Brief Introduction

Before describing what an author's editor can do, let me briefly introduce this group. An author's editor is one kind of editor who makes written material suitable for publication. He or she is employed by an author or an author's institution as a staff member or on a free-lance basis. Author's editors in the academic scientific community edit for authors in universities, research institutes, medical schools, hospitals, clinics, and various governmental agencies. They may be found in one of the few editorial departments in institutions around the country, in a two- or three-person office created by a single department, or at the World War II surplus desk in the corner behind the ultracentrifuge.

*Journal editor, as used here, means the scientific editor; sometimes his or her title is editor-in-chief.

The skillful author's editor blends a degree of scientific knowledge with communicative skills. Some come to the position with an education in journalism or English composition and learn the necessary science on the job. Others come with an education in a scientific discipline and an inherent interest and skill in editing that led them to develop that skill further.

Although educational programs in technical communication and science writing abound, I know of only one training program in scientific editing, a recently developed residency program in medical editing (3). Programs to train persons to edit scientific material skillfully and efficiently would establish standards of competence and would replenish and expand the pool of author's editors with persons who had met these standards. But until the term *author's editor* becomes familiar to the scientific and publishing community and represents a recognized and respected position in scientific publishing, the development of training programs will be slow or nonexistent, and few capable, motivated persons will be attracted to the field.

Fellowship programs have recently been established to train scientists ("Editorial Fellowships: A New Idea," H. Bentley Glass, CBE Annual Meeting, 1979) or physicians (Dr. Morris Fishbein Fellowship in Medical Journalism, AMA) to become scientific or medical editors who can oversee the publication of a journal. Perhaps fellowship programs will soon be established to train persons to become scientific author's editors who can help prepare scientific material for publication.

The Role of the Author's Editor

The role of a scientific author's editor can be summarized as follows: the author's editor helps the author communicate scientific data and ideas effectively. Translation of this generalization into a set of guidelines depends on our arriving at a mutually acceptable interpretation of the word "helps." What kinds of help are acceptable? How much help is acceptable? When is help acceptable?

The author and the author's editor must understand and accept the concept that the author's editor *helps* the author. The author must maintain an active, authoritative role and retain the responsibility for the product. Just as the author is responsible for the accuracy of the data recorded or calculated by a technician, for the accuracy of a figure drawn by a graphics specialist, or for the accuracy of a galley proof set by a printer, so, too, is the author responsible for the editing of an author's editor. For his or her part, the author's editor must not become responsible by design or default for the message of the paper and must remain sensitive to the danger of slowly assuming responsibility as he or she becomes more familiar with the science.

The author and the author's editor must also remember that the acceptability of a paper for publication is determined primarily by the content and secondarily by the form. The only exception occurs when poor writing or

poor typing precludes review (4). Even though poor writing can sabotage a good study, good writing cannot salvage a poor study. The author's editor cannot guarantee that his or her services will result in acceptance; the author should not expect such a guarantee.

The wordsmith

Most author's editors are primarily wordsmiths, that is, they shape and work the prose to help the author say exactly what he or she intends to say. The shaping and working may range from correcting grammatical errors to outlining a completely different organization of the paper for the author's consideration. The level of editing expected from an author's editor depends on his or her expertise in communication and his or her understanding of the science and on the author's confidence in that expertise and understanding.

Various levels of editing can be defined, but in practice one level blends into the next. For our discussion, I will define three levels as follows:

technical editing: putting the manuscript into formal English and into the technical style of the journal, checking the accuracy of references and numbers.

substantive editing: technical editing plus revision directed toward clarity and brevity.

creative editing: analysis of the content and the organization of the manuscript with revision directed toward presentation of the data and concepts as effectively as possible.

Some would limit the contributions of an author's editor to technical editing. Such limitation deprives the author of one of the most beneficial contributions of an author's editor, that is, help by a skilled communicator in preparing an accurate, logical, clear, and concise message. I propose that full use of the skills of an author's editor can be made acceptable to most people in scientific publishing.

One potential objection to the use of an author's editor may arise from the view that scientists should write their own papers—and with that view I agree. An author's editor must receive something to edit. The author's editor who composes an article from the experimental data and a stack of reprints is no longer an editor but is a writer. That person has made a scientific contribution to the manuscript by interpreting the data, drawing the conclusions, and making the relevant comparisons. That person should then be listed as an author of the paper. In practice, most author's editors are not qualified to do this; the rare author's editor who is, and who is expected to do this, should have a clear understanding with the scientists before beginning the project that a scientific contribution such as this warrants co-authorship (5).

Some may say that by relying on an author's editor the author is denying himself or herself a valuable tool. We know that the interplay of reading, reflecting, and writing can help one develop and clarify ideas (6). In com-

posing a draft the author reflects on what has been written and then leaves it or revises it. This process continues until the author thinks the words convey what he or she is trying to say.

Eventually, efficiency demands that the author let others reflect on the words. At this point the author solicits a presubmission scientific review, certainly from co-authors and usually from colleagues. After incorporating their suggestions, the prudent author solicits a presubmission review of the communication of the message.

The author's editor will focus on the words, syntax, and organization of the paper. With the advantage of distance from the project, the author's editor may perceive problems of communication missed by those in the field. He or she can then make tactful queries about ambiguous passages, gobbledygook, jargon, cluttered figures, and confusing organization. With the advantage of editing expertise, the author's editor can suggest ways to correct faults or to improve the communication. The author then answers these queries and responds to these suggestions—either by revising the draft himself or herself or by giving the author's editor the answers and responses. In either instance, the author has been forced to reflect once again and thereby to refine and clarify the message further.

Some may say that the message is more likely to be incorrectly altered when someone other than the author rewrites or edits the paper. This may be of concern if the "rewriter" or "editor" is the editor of the journal to which the paper has been submitted (7). The author may consider the journal editor to be an expert, far wiser than the author and privy to greater insight in interpreting the data. The author may be reluctant to dispute changes made by the journal editor.

The relationship of the author and the author's editor should be far different. The author's editor is an employee of the author. The author is the authority and will feel free to demand that the paper accurately present his or her views.

Some may say that a scientific author is misrepresenting his or her writing skills when he or she uses an author's editor to help improve the communication of the message without making the author's editor an author. But scientific authors have statisticians analyze data, computer programmers write programs, and laboratory technicians run complex, sensitive analyses. Presumably, with time and training the authors would be capable of executing these tasks themselves; but these authors have chosen to use their time otherwise, to use the skills of the experts, and usually to acknowledge the assistance of the experts. We recognize the need for authors to consult other experts. Some journals insist on it. How many journals request or require that the figures be professionally drawn?

Most scientists have neither had the training nor taken the time to become skilled communicators of scientific information. One way to remedy this deficiency is to use the services of an author's editor and to acknowledge use

of those services—I suggest in an acknowledgement at the end of the article. My own guidelines require acknowledgement for more than minimal substantive editing and for creative editing, but no acknowledgement for technical editing. If our discussion of the role of the author's editor suggests that the level of editing would need to be defined in the acknowledgement, a standard wording that is understood and accepted by others in scientific publishing could be devised.

With this recognition, the contribution of an author's editor is readily apparent. The alert journal editor about to ask a scientist to write a guest editorial or a review and the alert academic promotions committee would have that information at their disposal to use as they saw fit. With such a system, authors could use the skills of an author's editor without concern that they are misrepresenting their own skills; the contributions of author's editors would be publicly recognized; and authorship of a scientific paper would remain an indication of scientific expertise and skill.

The expediter

An author's editor can help get a manuscript to and through a journal office expeditiously. He or she can relieve the author of many of the tedious but important tasks that are a part of putting a manuscript into final form. And a manuscript complete with all the required material and in an acceptable technical style will likely be processed by the journal office more quickly and at a lower cost to the journal.

As a technical editor, the author's editor checks the accuracy of the references, corrects spelling and grammatical errors, and puts the manuscript in an acceptable technical style. While an author may appreciate the necessity of attending to these tasks, it is inefficient to use his or her time to do this routinely. The time required may so inhibit or frustrate an author that these tasks may be completed faster and better by an author's editor. A manuscript edited by an author's editor should contain few technical errors, and producing such a manuscript should be a matter of pride for the author's editor.

An author's editor may serve as the author's production manager, coordinating work by the photographer, illustrator, graphics specialist, and typist so that the complete package is compiled as efficiently as possible. An author's editor may also help coordinate the collection of parts of a multi-authored paper or the review of drafts by co-authors.

The contribution of an author's editor need not end with submission of the manuscript to a journal. When the journal editor requests revision or additional material, the author's editor can help the author respond to the requests appropriately and quickly. When the journal editor rejects the manuscript, the author's editor can grieve with the author for a time and then set about encouraging him or her to take matters in hand and revise the manuscript for submission to a different journal. When the journal editor accepts

the manuscript, the author's editor can help proofread and quickly return the galley proofs or page proofs, order the reprints, and handle the reprint requests.

To use an author's editor only as an expediter is not using the skills of an author's editor to their fullest. These tasks can be and are completed by knowledgeable, competent secretaries. But too often a secretary's training or experience has not prepared him or her for these tasks and has not instilled an appreciation of their importance. With the turnover in secretarial positions, authors may not want to spend their time training and motivating the secretaries. An author's editor can complete or oversee the completion of these tasks with minimum orientation and can train a motivated secretary to do technical editing.

An author's editor can also expedite getting the prose into print by being a resource of information about scientific publishing. The range of expertise a given author's editor has depends on that person's training and experience. Many can give initial guidance on how to obtain permission to use copyrighted material, how to handle patient identification, or how to show compliance with federal or other regulations governing experimentation. In the absence of more expert advice, an author's editor may help an author decide whether all four photographs can be grouped in one plate or must be separate plates. An author's editor can explain terms used by journal editors or publishers that may not be understood by authors, such as "halftone," "running head," or "extract." And an author's editor can help an author understand the reasons why journal editors have certain requirements, for example, why the figure legends should be typed on a separate page or why references must be double-spaced.

Some authors are astonishingly ignorant of their responsibilities in publishing scientific articles. An author's editor is in a position to tactfully educate these authors about their responsibility to publish an accurate, logical, and clear message that does not repeat the message of a previous publication or to submit their manuscripts to one journal at a time.

The educator

The role of an author's editor that may have the greatest potential benefit is that of an educator. Communicative skills must be developed through practice and are developed most efficiently under supervision (7). The training of a scientist rarely includes formal education in communicating the science. In most programs a student is expected to develop writing skills by writing a dissertation under the direction of a scientific advisor who also has had no supervised training in communicating scientific data and ideas. Some scientists are fortunate to be associated with another scientist who is a skillful communicator *and* who is willing to spend some time helping him or her develop writing skills. Some may be helped by the brief instructive comments a journal editor or reviewer has taken time to write on a submitted

manuscript. The highly motivated scientist may initiate a self-study program of reading books on scientific writing. How much more efficient it is to have a skilled communicator of scientific information available to supervise the development of skills by those motivated to learn. An author's editor who has the confidence of the author is in an ideal position to be an educator.

The education of authors may be formal or informal. The author's editor may give a series of lecture-workshops on the basic skills of organizing, composing, and revising a draft. Or the author's editor may teach an author while they work together on the author's manuscript.

A departmental chairman may make development of skills in scientific writing a part of the educational program of the students. He or she may direct the author's editor not to edit the papers of graduate students or post-graduate fellows but to indicate on the drafts where changes are necessary or desirable and to raise questions at appropriate points, a level of editing we might call *educational editing*. If, indeed, writing a dissertation is to be the principal test for developing the writing skills of a graduate student, an author's editor should give only educational editing to that student.

Faculty members who are serious about developing their own skills could request educational editing from the author's editor, too. Some faculty members might find they are getting educational editing without requesting it. The author's editor who finds an author expecting more writing than editing, with the excuse "I just can't write!", may tactfully begin an overt or covert program of educational editing for that author (8).

An author's editor who works alongside the scientists every day is a readily available resource. Authors with communication questions or problematic passages may be reluctant to ask fellow scientists to spend time helping them, and they seldom call or write a journal editor for advice. An author's editor is usually accessible to the author at the time the need arises.

With time, the quality of scientific writing should improve because the body of scientists who can communicate well should grow. There has been and always will be a group of scientists who have an inherent ability to express their message clearly. There will always be a group motivated enough to develop their writing skills themselves. To these groups we should be able to add a growing group of scientists who develop their writing skills through working with an author's editor—through supervision of their own writing and editing or through understanding the reasons for editorial changes. From this body of skilled communicators will come not only better scientific authors but also a cadre of reviewers with low thresholds for ambiguous prose, gobbledygook, confusing organization, and verbosity.

Practical Considerations

Periodically the sorry state of scientific writing is lamented and the ramifications of poor communication are decried, but suggested remedies have

apparently had little effect on the overall quality of scientific writing. One remedy with potentially greater effect is the development of the synergistic relationship of author's editors with authors and journal editors.

The authors (and journal editors) reading this article will not have missed one unwritten assumption: the cost of improving the content and form of scientific manuscripts would be paid by the author. At a time when "cost containment" is a byword, adding a new expense to a researcher's budget is a legitimate concern. But is the alternative acceptable? How long can we pay the bill for the time authors spend inefficiently preparing manuscripts, for the cost of publishing manuscripts one third to one half longer than they need to be, and for the time readers spend trying to understand unclear and ambiguous reports?

In our system of scientific publishing, the author is responsible for submitting a clear, logical, concise, and complete manuscript in an acceptable technical style. It is only reasonable that the author should have the training or the tools to fulfill that responsibility. The cost of this training or of the tools then becomes a legitimate educational or publication expense. We justify the cost of training scientists to write computer programs, the cost of consulting with experts during the course of study, and the cost of having photographs made for a report. So, too, we can justify the cost of the training or the tools supplied by author's editors.

The hurdle of expense will be overcome, I think, once author's editors are recognized as part of the publishing team and once the costs are generally accepted as justifiable. The bigger hurdle is the author's fear that whoever uses the services of an author's editor may be accused of using a ghostwriter and that recognition of the contributions of an author's editor must be with co-authorship. Both fears are unfounded. Author's editors as I have described them are not ghostwriters; and the contributions of an author's editor could and should be recognized in a way other than with co-authorship.

Most authors would, I think, accept and probably welcome such a system but if and only if it is sanctioned by the gatekeepers of the scientific literature, the journal editors. Most journal editors seek to increase the efficiency of their journal offices and to upgrade the quality of papers published by their journals. A fast and effective way to do this, I think, is to increase the number of authors who use the services of an author's editor. The potential benefit this approach has for the journals would seem to warrant a closer evaluation by journal editors of this proposal.

An Invitation

"*Discuss* involves close examination of a subject with interchange of opinions . . ." [*American Heritage Dictionary*]. I have presented my opinion; now it is your turn. Do you agree or disagree? What would you delete, modify, or expand? Do you want to suggest a completely different ap-

proach? What kind of system would be most beneficial and most acceptable to you? I invite you to sharpen your pencil and "edit this draft."

REFERENCES

1. Applewhite LB: The author's editor. Medical Communications 1:16–20, 1973
2. Cox BG: The author's editor. Mayo Clin Proc 49:314–317, 1974
3. Applewhite LB: A residency program for technical/biomedical communicators: a master's degree program with concurrent on-the-job training. J Technical Writing and Communication 9:127–140, 1979
4. Day RA: How to Write and Publish a Scientific Paper. Philadelphia, ISI Press, 1979, pp 73–74
5. Tacker MM: The code of an author's editor. Medical Communications 5:7–9, 1977
6. King LS: Why Not Say It Clearly: A Guide to Scientific Writing, Boston, Little, Brown and Co, 1978, pp 74–75
7. DeBakey L: Rewriting and the by-line: is the author the writer? Surgery 75:38–48, 1974
8. Eastwood S: Is the editor an author: a gentle conspiracy. Medical Communications 5:10–12, 1977

Dr. Tacker's address is 2901 Wilshire Ave., West Lafayette, IN 47906.