

Introduction

Since January 2000, when the Council of Biology Editors became the Council of Science Editors and *CBE Views* became *Science Editor*, we have been trying to broaden the array of sciences represented in these pages and thereby facilitate exchange of ideas among editors in different fields of science. As part of that effort, we are now starting an occasional series, "Editing Across the Sciences". In each piece in this series, an editor in a given scientific discipline will answer a standardized set of questions about journal editing in that discipline and then, if desired, provide additional comments.

Typically, each *Science Editor* issue in which the series runs will include one Editing across the Sciences piece. To kick off the series, however, we are now publishing four of these pieces, from varied fields. (Lest readers attribute too much meaning to the choice of fields represented: These pieces were simply the first to arrive of those solicited.) In keeping with the

leeway provided, some respondents are focusing largely on norms at their own publications, whereas others are dealing more broadly with journal editing in their fields.

For this series to be most effective, reader involvement is needed. Have you something to add to a respondent's remarks? Please write a letter to the editor—or an "Editing across the Sciences" piece of your own. Is there a discipline you think should be represented? If so, please tell us, so we can try to include it if it is not yet on our list. And ideally, be ready to suggest a respondent from that discipline—or, better yet, to be the respondent yourself. Answering the questions is unlikely to take much time, and it can greatly aid interchange among editors from across the sciences.

Barbara Gastel
Editor, *Science Editor*
b-gastel@tamu.edu

Materials Science

Respondent:
Elizabeth L (Betsy) Fleischer
Editor
MRS Bulletin

Materials science lies at the intersection of many disciplines, in particular chemistry, physics, various fields of engineering, and increasingly biology. Materials scientists look at "the stuff everything is made out of" to find connections between the underlying atomic structure and microstructure of a material, its properties, how processing changes it, and what the material can do—its performance. Perhaps because of the interdisciplinary nature of the materials field and its relative newness, its editing conventions are far from standard and often built on those from other fields. Whether a "materials style" will grow as materials science becomes a first home rather than a second one for many of its constituents is for the future to determine. Or perhaps it is not a "materials style" that matters. As one editor said to me, "There is no 'materials science' editing; clear communication of the content is the point."

What style manual(s) do materials science journals generally use?

Style manual? What style manual? As of this writing, I am not aware of a publicly available "materials science" style manual. Some publications have their own "house" style. In many cases, manuals are used from related fields of science (physics, chemistry) or used as a base for in-house manuals. Commonly used guides include the American Institute of Physics (AIP) *Style Manual* (although 1990 is the latest version) and the American Chemical Society (ACS) *Style Guide*. Additional guides are used for some technical terminology (in our case, the *McGraw-Hill Dictionary of Scientific and Technical Terms*), and others for general English usage, such as the *Chicago Manual of Style*, various dictionaries (*American Heritage College Dictionary*, *Oxford English Dictionary*), and even the *Associated Press Stylebook* (a standard in the US press).

In materials science, what criteria must an individual generally

**meet to be listed as an author?
When a journal article in materials science has more than one author, what are the norms for deciding the order in which authors are listed?**

Editors have very little to do with who is included and in what order. It seems universal in the materials community to accept the author list as submitted, leaving the choice of inclusion and order of authors to the authors themselves. From an editor's perspective, according to one editor I polled, "the important thing is obviously to have a corresponding author who can actually be reached".

As an editor, I find it helpful, however, to understand what, if anything, is common practice in the community, even if it is under someone else's control. For instance, if a contact author is not available, who is next in the pecking order? If an author refers you to a coauthor to answer a query, is this cause for concern? There are several common practices for the order of authors, but there is no guarantee that the authors didn't just draw lots or go by height. Sometimes the primary contributor is listed first (even possibly listing additional authors in decreasing order of participation), sometimes a group leader or thesis adviser is listed last, and sometimes names are just listed alphabetically or clumped by institution.

The choice of who is an author had seemed reasonably noncontroversial until the recent discovery of misconduct by J Hendrik Schön on numerous papers. The investigation brought to light, but did not attempt to answer, the issue of whether there needs to be a higher standard of involvement by coauthors. In materials science, it is common for several people with different skills and knowledge to collaborate, for instance, with one person making a material and another analyzing it. How deeply is one author expected to understand the work of the other? The debate has barely begun, but the general notion is that an author should have contributed in an important way to the origin, work, or interpretation of the research, and all

authors should be familiar enough with the work to discuss it at a general level. People who contributed, but to a lesser degree, are usually destined for the acknowledgments. However, one journal encourages authors to indicate in the acknowledgments the contributions made by coauthors.

What number of peer reviewers per paper tends to be typical in materials science? Typically, are authors' identities revealed to the reviewers? Are reviewers' identities revealed to the authors?

The number of reviews varies from journal to journal, and even paper to paper, but typically journals will have one or two reviewers with editors (and often a second sublayer of editors) weighing in when needed, although at least one journal requires two and often uses three reviewers. In general, the identities of the authors are revealed to the reviewers, but the identities of the reviewers are not revealed to the authors.

My own publication, which consists of overview articles as part of a "theme" coordinated by a guest editor (and selected in cooperation with a small team of researchers), has quite a different process, but that is outside the scope of this article.

In materials science, do scientific papers usually contain abstracts? If so, how are the abstracts usually structured?

Yes, usually papers contain abstracts that summarize the purpose, scope, and major findings, although guidelines are rather loose, perhaps suggesting a length (such as 100 to 200 words or so).

What is the usual structure of a scientific paper in materials science?

Although the structure is not necessarily legislated by the journal, the conventional structure is abstract, introduction, experimental procedures, results, discussion, conclusions (or summary), acknowledgments, and references. For longer or review articles, topical subsections are often included.

What are some of the current issues and trends regarding editing in materials science?

One trend is toward “everything electronic”, from submission through review to delivery. Even automated copyediting has been added to the mix of options. Although this rapid change is a welcome relief to the new generation, and it may leave those less computer-savvy people feeling frustrated, a more subtle question is how it affects researchers in developing countries.

Increasing international participation (including that in developing countries) and increasing participation of nonnative speakers of English has brought some issues in editing and reviewing to the fore. What “style” of English should be used? Some journals use British and some US, and some allow it to stay in its submitted form. A bigger issue is who is responsible for fixing the poor writing of authors for whom English is a second language (as well as of those with English as a first language, but who value speed of submission over quality of writing). With budgets being squeezed and demand for quick and cheap dissemination of information increasing, this important quality-improvement step is at risk of being neglected.

A “trendy” trend now is for authors to put nano in front of anything small (or anything at all). Where the funding goes, so too go the words.

Are there aspects of materials science editing not asked about that seem worth noting? If so, please

Ecology

Respondent:

J David Baldwin
Managing Editor
Ecological Society of America
Publications

What style manual(s) do ecology journals generally use?

We keep our own style manual for our copyeditors, but we tell our authors to consult recent issues of our journals and the 5th edition of the CBE style manual. We make great use of the wealth of detail

discuss.

To improve the experience for readers, should articles be topically categorized? Categorizing makes it easier to find a relevant item in a sea of many topics, but it reduces the cross-pollination that happens when people stumble on something outside their expertise, a principle that is key in materials science.

Should articles that are technically correct but do not advance scientific understanding be accepted? Particularly in materials science, there are many combinations of materials with small differences that can be tested, but is that science?

Publications are increasingly using impact factors to validate their relative worth. Impact factors need to be understood to be useful. In addition to the usual caveats about impact factor found in any field, in a field like materials science—which includes bits of metallurgy, chemistry, physics, biology, and engineering—how does one normalize the values on the basis of typical citations in the field?

What sources would you recommend to readers interested in further information about materials science editing?

There are not many good sources of editing practices in materials science. The best way to learn more is to contact an editor of a favorite journal.

regarding scientific conventions in the 6th edition, but we dislike some of its recommendations for style, especially for citations and references. Other ecology journals follow the *Chicago Manual of Style* or the 6th edition of the CBE style guide.

In ecology, what criteria must an individual generally meet to be listed as an author? When a journal article in ecology has more than one author, what are the norms for deciding the order in

which authors are listed?

We do not impose strict rules on this, but we try to discourage gratuitous coauthorship by insisting that all authors sign a publication agreement. Also, we will list all the authors' names in the table of contents (and on the cover) only if there are fewer than 12. In the "Literature Cited" section, any paper with more than 10 authors becomes an "et al" listing.

We follow the order provided by the authors for multiple-author papers. In general, the expectation is that the person who did the bulk of the work and writing is the first author, but there are exceptions. We do not receive very many papers with large numbers of coauthors, but there are some. When these are published, there is somewhat more prestige associated with being first, second, or last author. In some interdisciplinary papers with many authors, there is a tradition for the last name listed to be that of the principal investigator on the grant funding the research project.

The Ecological Society of America has a code of ethics (www.esa.org/certification/codeofEthics.php) specifying that

1. Researchers will claim authorship of a paper only if they have made a substantial contribution. Authorship may legitimately be claimed if researchers

- a. conceived the ideas or experimental design;
- b. participated actively in execution of the study;
- c. analyzed and interpreted the data;
- or
- d. wrote the manuscript.

2. Researchers will not add or delete authors from a manuscript submitted for publication without consent of those authors.

3. Researchers will not include as coauthor(s) any individual who has not agreed to the content of the final version of the manuscript.

4. Researchers will not submit for publication any manuscript containing data they are not authorized to use. ESA assumes

that the principal investigator(s) of a research project retain the right to control use of resulting unpublished data unless otherwise specified by contract or explicit agreement.

What number of peer reviewers per paper tends to be typical in ecology? Typically, are authors' identities revealed to the reviewers? Are reviewers' identities revealed to the authors?

The modal number of reviewers is two (unless an editor-in-chief rejects a paper as inappropriate without review).

We ask reviewers whether they wish their identities to be revealed to the authors. The default is that they remain anonymous. The identities of authors are always revealed to reviewers.

In ecology, do scientific papers usually contain abstracts? If so, how are the abstracts usually structured?

All papers except "Comments" on previously published papers (and associated "Replies") have abstracts. We ask authors to begin abstracts by placing their study in context, but we also impose length limits. Other than that, we do not attempt to "structure" abstracts.

What is the usual structure of a scientific paper in ecology?

Introduction, Methods, Results, and Discussion.

What are some of the current issues and trends regarding editing in ecology?

We simply try to keep up with the field.

What sources would you recommend to readers interested in further information about editing in ecology?

The best sources are the journals themselves.

Geoscience

Respondent:

Jeanette Hammann
Editorial Manager
Geological Society of America

What style manual(s) do geoscience journals generally use?

We use the *Chicago Manual of Style*, the US Geological Survey "Suggestions to Authors", and the American Geological Institute's glossary of geology.

In geoscience, what criteria must an individual generally meet to be listed as an author? When a journal article in geology has more than one author, what are the norms for deciding the order in which authors are listed?

As noted in the Geological Society of America Ethical Guidelines for Publication (www.geosociety.org/pubs/ethics.htm):

"Authorship should be limited to those who have made significant contributions to the concept, design, execution or interpretation of the work reported in a manuscript; others who have contributed should be acknowledged.

"Author order should be agreed on by all authors as should any changes in authors and order that occur while the manuscript is under review or revision. Changes in authorship must be submitted to the Editor in writing and must be signed by all authors involved."

What number of peer reviewers per paper tends to be typical in geoscience? Typically, are authors' identities revealed to the reviewers? Are reviewers' identities revealed to the authors?

Two reviewers per paper is standard. There are exceptions.

Reviewers do have the names of authors. Reviewer identities are kept confidential unless a reviewer agrees to be revealed to authors. Authors are given an opportunity to request that specific reviewers be avoided for conflict-of-interest reasons.

In geoscience, do scientific papers usually contain abstracts? If so,

how are the abstracts usually structured?

All papers have abstracts. We ask that they be limited to 250 words because they are used by abstracting services.

As stated on our Web site: "The abstract should present information and results in capsule form and should be brief and objective, containing within a 250 word maximum the content and conclusions of the paper. The topic sentence should give the overall scope and should be followed by emphasis on new information. Omit references, criticisms, drawings, and diagrams."

What is the usual structure of a scientific paper in geoscience?

The usual parts of the text are author names and addresses, abstract, keywords, body of the text, acknowledgments, appendix (optional), and references cited.

There are detailed explanations for individual publications at www.geosociety.org/pubs/.

What are some of the current issues and trends regarding editing in geoscience?

I can't really speak to what the science editors are looking for, but I can speak about the copyediting we do here at GSA once a paper is accepted. We continue to work toward preparing papers for electronic as well as paper publication. We are starting to do some tagging and linking to references at the editing stage. Much of this can be automated with software programs.

I do know that science editors are looking at ways to make supporting data more standardized, more useful, and more readily available to researchers, and I know that many are interested in online tables and figures that can be manipulated by later researchers.

Are there aspects of geology editing not asked about that seem worth noting? If so, please discuss.

I know some publishers do little or no copyediting, but we find it is essential to keep the quality of our publications high, and our science editors and other leaders agree with that.