"I'm a scientist, not a literary critic," many a biologist may silently protest when asked to review a book for a journal. "How can I be expected to produce a high-quality review?"

How? By drawing on skills and approaches you use as a scientist. Though a literary flair can enliven a review, book-reviewing for scientific journals is not a literary feat. Rather, it entails asking apt questions, gathering information to answer them, and presenting the findings and conclusions clearly—in short, the sorts of things that biologists do every day.

Deciding whether to review the book

Book reviewing is a valuable service. But you can serve readers, authors, publishers, and the journal best by choosing assignments carefully. You and the book must be well matched, the book must be worth reviewing, and you must be able to complete the review on time.

Finding appropriate reviewers often involves successive approximations. Especially if their journals span many areas, book review editors can lack adequate information to identify the most suitable reviewers. Thus, when contacted about writing a review, consider whether you and the book are indeed an appropriate match. Are you sufficiently versed in the subject matter? If so, are you free of potential conflicts of interest? (Such conflicts may exist, for example, if have you written a competing book, if the author was your mentor or student, or if you are preparing a volume for the same series.) If you conclude that you are not a suitable reviewer, suggest other candidates if you can.

Also consider whether the book is indeed worth reviewing. Editors generally try to assign for review only those books of sufficient quality and importance to justify using limited space in a journal. If at any point you feel that the book may not deserve review, contact the book review editor. Even a seriously flawed book can be worth reviewing if it also has substantial merits, or if it is being heavily promoted and thus its limitations should be made known. Sometimes, however, a book merely should retain the obscurity it deserves.

Finally, consider whether you have (or will make) time to prepare the review. By their nature, book reviews, especially in the sciences, should be timely. And submitting reviews late disrupts the planning of the journal. If you doubt you could meet the deadline, refuse the invitation and suggest other reviewers.

Keep in mind the possibility of proposing a co-reviewer. If, for example, a book is interdisciplinary, collaborating with an expert in another relevant field can yield a stronger review. For some books, coauthoring a review with a colleague whose orientation is more theoretical or more applied than yours also can be of value. When reviewing a textbook, involving a student can add helpful perspective, as well as give the student some useful experience and an initial publication credit.

What about suggesting books for review or volunteering to be a reviewer? Book review editors tend to appreciate such initiatives. Calling their attention to little-publicized but valuable new books can be especially useful. And anything that helps editors expand their pools of qualified, willing, reliable reviewers is likely to be welcome—and to serve the journal's readers.
Identifying questions to ask

Although little information apparently exists about how journal readers actually use book reviews—or even about the extent to which they read them—book reviews have certain recognized functions. A main function, of course, is to acquaint readers with worthwhile books and to inform the readers of those books’ strengths and limitations. Another function, especially for reviews in journals of wide scope, is to broaden readers’ familiarity with their own and related fields; through reviews that place books in context and convey some of their content, readers can learn indirectly from books. Also, reviews can help teach readers what characterizes a good book, which in turn can aid them in tasks such as evaluating books for courses and writing books of their own.

To serve these functions, a review should both describe and evaluate a book. Among questions that many reviews should address, and thus that reviewers should keep in mind, are the following:

- What is the purpose of the book? According to the authors or editors, what does the book aim to do? How worthwhile is this goal? How well does the book accomplish it?
- From what context did the book emerge? For example, does the book reflect the development of a new field? Is it on a controversial topic? Is it based on a symposium? Is it a sequel or part of a set?
- Who wrote or edited the book? What are the qualifications and affiliations of the authors or editors? What are their previous accomplishments? If pertinent, to what school of thought do the authors or editors subscribe?
- Of what does the book consist? What is the scope of the content? How is the content organized? Does the format have any special features? What main points does the book make? What are some noteworthy things it says?
- What are the strengths and weaknesses of the book? How accurate and complete is the information? How sound are any central arguments? Does the book make a substantial new contribution? How readable, and otherwise how skillful, is the writing? If the book includes features such as illustrations, a glossary, or an index, of what quality are they? If it lacks such features, is their absence a problem? How well designed and produced is the book? If, for example, the book is a field guide or laboratory manual, does its form suit its function? Is the book reasonably priced?
- How does the book compare with other works? If the book is a second or later edition, how does it differ from its precursor? If it is a textbook, how does it compare with the competition? If the author has written earlier books, how does this one stack up?
- Who would find this book of interest and use? Would the book be of value to specialists in the field? Is it suited for students at given levels? Would it interest policy makers or segments of the public?

By addressing questions such as these, you can prepare a review that fulfills its functions well.

Gathering the information

During my first stint as a book review editor, I approached a favorite former professor about reviewing a book in his field. “Does this mean,” he asked, “that I should read the book?” At the time, I felt amazed at his naivete. But now I realize that I may have been the naive one—for although answering questions such as those above usually requires reading the book thoroughly, sometimes the task requires less or more.

Generally, of course, you should read the book completely and carefully. Consider taking a sandwich approach: scan the book for an overview, then read it in detail, and then scan it again for the big picture. To aid in writing the review, take notes while you read; record, for example, possible points to make, passages to consider quoting, ideas for organizing and wording the review, and items to check for accuracy.

Sometimes reading a work from cover to cover is neither feasible nor appropriate. Rare is the reviewer who would plow through a massive reference text, an encyclopedia of science, or a scientific dictionary. Nor would doing so be valid, as such works are meant to be drawn on selectively. When reviewing such a work, determine its general characteristics and then sample the content. One approach is to sample entries totally at random. Another is to take a systematic sample; for instance, sample some entries in your own subfield (for accuracy and completeness) and some in other subfields (for usefulness to relative outsiders). A third approach is to consult the work as appropriate occasions arise and keep a log of the findings. Sampling also can complement traditional approaches to reviewing; for example, you can use it to gather data on recency of references or on adequacy of indexing.

Consulting materials other than the book can strengthen a review. Consider drawing on sources of historical information, looking at competing and other related books, and referring to previous items by and about the authors or editors. Doing so can help you more fully, accurately, and effectively show how the current book fits in.

Also, consulting other people can enhance a review. If the book is meant at least in part for students, show it to some of them and report their reactions. Ditto if members of the public are an intended audience. If the writing or graphic design strikes you as especially good or bad, see what a colleague in such a field has to say. Supplementing your own reading with the use of such sources can yield a more complete and useful review.

Writing the review

Having gathered the information for the review, you are ready to write it. Or, more precisely, you are almost ready. Before starting to write, be sure to review the instructions from the book review editor. Check such items as how long the review should be, what sort of heading it should have, and whether it should be double-spaced. In writing book reviews as in writing scientific papers, following the instructions from the journal is crucial to accurate, smooth, and prompt publication.

Also, in book reviewing as in other scientific writing, looking at good models can help. BioScience sends
reviewers examples of reviews that it
has published. If you are reviewing
for a journal that does not do so,
track down some sample reviews
from recent issues. Not only can such
reviews illustrate suitable content and
format, they also can aid in ascertain-
ing the usual level and tone of reviews
that appear in the journal.

Before setting pen to paper (or dig-
ts to keyboard, or voice to tape),
perhaps discuss the book with others.
Doing so can help you formulate your
ideas and come up with effective ways
to express them. It also can aid in
determining what readers would
want to know about the book. Hav-
ing discussed the book, you may find
the review in essence largely written.

One question that may remain,
however, is how to organize the re-
view. Unlike scientific papers, book
reviews lack a standard structure; the
information can be presented in any
reasonable order. This flexibility can
be a plus, especially for reviewers
who enjoy the craft of writing. How-
ever, lack of a format also can be a
problem, delaying the writing of re-
views and leading to submission of
reviews that are ineffectively struc-
tured.

A solution that often works is to
structure the book review much like a
scientific paper. In other words, adapt
the IMRAD format: introduction,
methods, results, and discussion. A
review that is organized in this way
can readily address the questions it
should.

The introduction section of a book
review in this format can take various
approaches. One possibility is to start
with historical or other background,
so that readers can place the book in
context. Another is to begin with a
capsule description and assessment of
the book—in other words, a mini-
ture abstract of the review. A third
option is to draw readers in by sum-
marizing some of the most interesting
material in the book. Often, a com-
ination of these approaches works
well.

If you evaluated the book other
than by reading it from cover to
cover, the review also should describe
the methods used. Sometimes these
methods (for instance, sampling the
book's content) are most logically
presented early in the review, shortly
after the introduction section. In
other cases, descriptions of methods
fit better later in the review. For ex-
ample, they may be interspersed with
observations and conclusions to
which their use led.

Somewhat equivalent to a results
section is the description of the book.
Here you should note such items as
the figure, organization, and format
of the book; the main arguments pre-
sented (if any); and the presence of
special features. Either this section or
the introduction can be a suitable
place to identify the purpose of the
book and provide background on the
authors or editors.

In describing the book, avoid
merely reciting the table of contents.
Rather, try to convey the essence of
the book. For example, when review-
ing a conference proceedings, do not
list all the titles and authors; instead,
provide a brief overview and then fo-
cus on the most noteworthy contribu-
tions. The book review section of a
journal should not read like Current
Contents.

A review should, as previously
noted, contain your assessment of the
book. Often, much or all of the as-
Sessment fits most logically at the end
of the review, in a portion analogous
to a discussion section. Here you can
state the strengths and limitations of
the book, compare the book with
others, and note the audience for
which the book is suited. In book
reviews, as in scientific papers, sum-
marizing your main point is generally
an effective way to end. Book reviews
in some journals, including Bio-
Science, can list references.

In presenting your assessment,
strive for balance. A review is not an
advertisement, and you owe it to
readers to mention any substantial
weaknesses. But the word to remem-
ber is substantial. Avoid the tempta-
tion to nitpick. And though scathing
reviews are often cathartic to write
and amusing to read, a sarcastic tone
rarely serves science (or the commu-
nity of scientists). If you have criti-
cisms that are too detailed to include
but could aid in preparing future edi-
tions, consider sending them to the
authors or editors of the book, either
directly or through the publisher.

Like other scientific writing, book
reviews should be clear and concise,
without overly specialized jargon.
They should contain evidence to illus-
rate and support their points, but
they should not overburden readers
with detail. Ideally, they should be
interestingly written. If word play or
other wit is your style, here is your
chance to have some fun—and still
earn at least a minor line for your
curriculum vitae.

After drafting your review, set it
aside. Then come back and edit it.
Maybe show it to one or more col-
leagues; in book reviewing, as in
other writing, peer review can im-
prove the product. Before submitting
the review, check it for accuracy. In
particular, make sure that all names
are spelled correctly.

If others have published reviews of
the book, should you read theirs be-
fore submitting yours? Doing so can
be helpful, but doing so too early may
bias your assessment. One reasonable
task is to draft your review, then scan
the others for major points you may
have missed, and then prepare your
final version.

Last, check your review against the
instructions, produce a final copy,
and submit the review on time. When
editors and readers compliment you
on the review, think to yourself, "Of
course, it's a fine review. After all, I'm
a scientist."

Barbara Gastel is an associate professor
of journalism and of humanities in medi-
cine at Texas A&M University, College
Station, Texas 77843-4111. She has been
a book review editor for the Johns Hop-
skins Medical Journal and the American
American Institute of Biological Sciences.

STUDYING ANIMAL'S MINDS

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