After the introduction section. In
presented early in the review, shortly
cover, the review also should describe
methods (for instance, sampling the
book's content) are most logically
than by reading it from cover to
well.

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-
bination of these approaches works
well.

If you evaluate 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 scope, 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,
supply 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-
essment 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 BioSci-
ence, 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 ed-
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-
state 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
tack 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 profes-
sor of journalism and 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

Interpretation and Explanation in the
Study of Animal Behavior. Marc
Bekoff and Dale Jamieson, eds. West-
505 pp., illus., $45.00 (ISBN 0-
8133-7704-8 paper); vol. 2, 465
pp., illus., $45.00 (ISBN 0-8133-
7979 paper).

Many questions arise in the study of
animal behavior. That of how to in-
corporate the concepts of mentation
and cognitive abilities has had an
interesting history. This two-volume
work, edited by Marc Bekoff and Dale Jamieson, provides a set of studies that touch on that approach to the study of behavior from a variety of viewpoints. The 37 chapters by 50 authors bring together a wealth of biological, historical, and philosophical issues influencing how we study behavior. Indeed, some of the most interesting chapters are written by contributors housed academically in philosophy departments, reflecting the breadth of interests of the editors.

Even when addressing specific topics in behavior (such as play, kin recognition, and communication), most of the authors of this book bring up ideas of general interest concerning how behavior is studied, regardless of the functional category of behavior or of the taxon we focus on. For example, in considering the rather limited topic of tradition in animal behavior, B. Galef shows how complex concepts can be explained as a set of simpler processes if the mechanistic bases are examined carefully. Although he uses examples from the study of birdsong dialects, D. Kroodsma points out the “typology trap” that we can fall into when one (representative) stimulus is used in an experiment and the results are expanded to a broader class of stimuli. A. R. Blaustein and R. H. Porter review the concept of kin recognition, illustrating the strength of multiple approaches to understanding a behavioral phenomenon.

The two volumes are divided into seven major sections and a number of general methodological issues are touched on, i.e., the thoughtful chapter by J. Fentress on categorization in the study of behavior, and the evolution of behavior chapter by S. Mitchell (the juxtaposition of her chapter next to R. Thornhill’s on the study of adaptation makes for interesting reading). But clearly the major theme of the book is the question of cognitive ethology (Bekoff and Jamieson 1990) and how to study the minds of animals (Griffin 1984). A number of the authors, but not all, argue that we are missing a useful avenue of understanding if we do not consider the mental capabilities of animals. Several authors spend considerable time pointing out the difficulty of drawing a line between the sentient and non-sentient taxa, given the evolutionary continuum that is part of our Darwinian framework. But several authors seem to fail to appreciate what could be called a mental dichotomy practiced by many researchers (myself included) whereby we “realize” that nonhuman animals have feelings, but believe that the study of those feelings need not be a part of our research program.

As a practicing behavioral ecologist/ethologist, I am supportive of the idea of multiple approaches to the study of behavior. Dawkins (1989), among others, has pointed out that Tinbergen’s four pillars of ethology (survival value, evolution, development, and proximate causation) have been dominated in recent years by the single question of adaptation. That single question must be just a part of our research programs, not the sole goal. However, after reading the nearly 1000 pages of the Bekoff/Jamieson books, I am not convinced that a consideration of the feelings or mental states of individuals of other species is a useful approach. I do not at all deny that chimpanzees, dolphins, the canids that Marc Bekoff studies, or even the hermit crabs that I study have cognitive abilities. The general logic presented by H. Wilder and the historical treatment of the subject by R. Crisp certainly make a strong case for trying to keep an open mind on the possible scientific utility of the approach. But none of the specific examples given in the many chapters makes me feel I really understand behavior better by consideration of mental states.

The question of the cognitive abilities of nonhuman animals clearly leads to the question of animal rights, and the books make that link obvious. It is appropriate that behaviorists (in the non-Watsonian sense) seriously consider this question, because we cannot accurately study our subject matter if the objects of our observations are stressed, physically or behaviorally. This issue is a major focus of almost every scientific meeting dealing with behavior. The chapter by S. Finsen is a valuable summary of the considerations that should be a part of discussion of these issues.

Although these chapters did not convince me to take a more cognitive approach, I believe this set of books should be read, at least in part, by all scientists interested in behavior. The chapters are well written and bring up important methodological/philosophical points that should be considered up front. These are philosophical issues that apply to all serious students of behavior. I would not recommend the volumes for the typical undergraduate or casual “animal lover” (as suggested as part of the cover advertisement), because the best chapters are not light reading.

BRIAN A. HAZLETT
Department of Biology
University of Michigan
Ann Arbor, MI 48109

References cited

EVERYONE WARMS TO THE PROBLEM


Both of these books are good primers on the threats by global warming. F. Lyman’s The Greenhouse Trap is meant to be a “guide to the environment” that helps “Americans to grasp the big picture” (p. vii). Therefore, although it does not go into great depth, The Greenhouse Trap comprehensively covers most things a neophyte would need to know, laying out facts and explanations in a news-story-like, short-paragraph style. M.