

*Lieutenant's Woman*. Little will surprise readers who are accustomed to listening to exchanges between the celebrated "two cultures." The scientist writes in short, declarative sentences with conviction, earnestness, and certainty; he may not make grand claims to truth, but he has "the method" that best approximates it. He believes that both areas will be bridged in the kind of argument offered by E O Wilson in his volume, *Consilience: The Unity of Knowledge* (1998. New York: Knopf). The humanist has no such method; he is uncertain about knowledge in general, and humanistic knowledge in particular. With wisdom and eloquence he celebrates endeavors such as poetry and fiction that "don't derive their truth from scientific verifiability" (p 210).

The two occasionally spar with each other, but for the most part genuinely attempt to listen to one another's points of view. Although it is unclear whether they achieve their goal of "bridging the two cultures," the book makes for good reading. The dialogue is substantive, serious, stimulating and, on occasion, fun. It is worthwhile reading for those interested in a novel approach to the subject.

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IN NATURE'S NAME: AN ANTHOLOGY OF WOMEN'S WRITING AND ILLUSTRATION, 1780–1930.

*Edited by Barbara T Gates. Chicago (Illinois): University of Chicago Press. \$75.00 (hardcover); \$27.50 (paper). xxvi + 673 p; ill.; no index. ISBN: 0-226-28444-1 (hc); 0-226-28446-8 (pb). 2002.*

This thematic anthology arose as a companion volume to Gates's earlier book, *Kindred Nature: Victorian and Edwardian Women Embrace the Living World* (1998. Chicago (IL): University of Chicago Press). It brings together the works of 69 female authors and artists from the Victorian and Edwardian periods in order to provide "new insights into women's role in redefining nature, nature study, and nature writing" (p xxii). Each major section of the anthology treats a particular area of activity or a question related to women's writing on nature and the environment: Speaking Out; Protecting; Domesticating; Adventuring; Appreciating; Popularizing Science; and Amateurs or Professionals? The volume includes biographical sketches of the authors and artists, a chronology that relates the works to their historical context, and a bibliography. The introduction to each section contextualizes the documents and pictures in that section.

Mostly excerpts from larger works, the selections in this volume are well chosen and remarkable for the diversity and richness they exhibit. Readers will be exposed to a wide range of voices—contempla-

tive, analytical, poetic, strident, whimsical, pedagogical, practical, and sublime—addressing an almost equally wide range of audiences. The selections demonstrate how women's writing exemplifies the multiple possibilities for relating to, interpreting, and representing nature and its connections to human beings and to culture. Although the themes and overall focus of the anthology give it coherence, it does not come at the expense of obscuring the diversity among the authors and works included.

Its very nature as an anthology means that *In Nature's Name* is more illustrative than exhaustive, and its treatment of the themes and questions raised is more suggestive than definitive. In that sense, the volume offers the beginning of an inquiry rather than the final product. Readers familiar with the cultural history of the period will have a greater appreciation for the richness of the material collected here than will those who are new to the subject. Advanced students and beginning researchers in women's studies or the cultural history of science should find *In Nature's Name* a good point of departure because of the immediacy and freedom of interpretation that it allows for readers. The literary quality of many of the selections should also make the volume quite useful in classes on literature or literature and science.

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MESELSON, STAHL, AND THE REPLICATION OF DNA: A HISTORY OF "THE MOST BEAUTIFUL EXPERIMENT IN BIOLOGY."

*By Frederic Lawrence Holmes. New Haven (Connecticut): Yale University Press. \$40.00. xii + 503 p; ill.; index. ISBN: 0-300-08540-0. 2001.*

During the five years following its 1953 *Nature* publication by Jim Watson and Francis Crick, the double structure of DNA was met with polite skepticism. The insightful genetic implications of the structure—that each strand could be used as a template during replication—laconically suggested at the end of that paper, generated even more turmoil and begat about half a dozen different replication models. A single experiment performed by Meselson and Stahl settled both structure and replication questions in one grand stroke. By growing bacteria in a heavy nitrogen isotope medium that was incorporated in the DNA, and later switching the bacterial culture to a regular light nitrogen, Meselson and Stahl demonstrated, using analytical ultracentrifugation, that DNA molecules had densities predicted by semiconservative replication models. The experiment was brilliant in its simplicity and it is fair to consider it the most elegant experiment in molecular biology.

This classic experiment is now shown in general biology textbooks and it is so deceptively straightforward that most of us think we know all about it. So was it really necessary to dedicate an entire book to the minute details of the genesis of the experiment? The answer is undoubtedly "yes" for three main reasons. First, the book is important as it debunks the apparently widespread belief that some people wake up in the morning and come up with genial ideas without much effort. Holmes demonstrates how such a "simple" experiment was extraordinarily complex both conceptually and technically. Although the reality of semiconservative replication now seems obvious, Holmes brings us back to a time where nothing was certain about the structure and function of DNA, particularly on the issue of its replication. It is in this context that the foresight of Meselson and Stahl needs to be judged. Second, Holmes argues that science does not proceed linearly, but uses unlikely routes. In this case, the idea of using different isotopes to uncover functional processes came to Meselson while attending a lecture by Monod on protein synthesis, only much later did Meselson and Stahl think of applying it to DNA replication. Third, this book is written in a gripping style. It is a "story in the form of a drama in several acts, with two central characters" (pp 4–5). At that time, analytical ultracentrifugation was excruciatingly slow. Only one sample could be run every 16 hours. It took an incredible amount of patience, careful planning, and guts to produce this most amazing experiment.

This book is essential for younger readers to learn about the processes of careful scientific method that lead to the "perfect experiment," and for readers with more experience in molecular biology, it brings back the same unaltered sense of awe that touched the community in 1958.

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## GENERAL BIOLOGY

### PLANT-ANIMAL INTERACTIONS: AN EVOLUTIONARY APPROACH.

*Edited by Carlos M Herrera and Olle Pellmyr. Oxford and Malden (Massachusetts): Blackwell Science. \$69.95 (paper). xii + 313 p + 4 pl; ill.; index. ISBN: 0-632-05267-8. 2002.*

Thirty years ago, few scientists would have described their fields of study as "plant-animal interactions," and it was rare to find a symposium

or a session of contributed papers on this topic at a national conference. Times have changed radically. Some such scientists have attained not only tenure, but even a certain respectability, and some universities (mine included) are developing courses in plant-animal interactions. Although the emergence of such courses marks something of a triumph for those of us who are hampered by the old boundaries among botany, zoology, agriculture, and entomology, it is certainly a challenge to characterize and delimit this sprawling "new" discipline. Like Frankenstein's monster, it has been stitched together from an unmatched set of components, some of which are in better shape than others. Aside from an early and idiosyncratic effort by Henry Howe and Lynn Westley (1988. *Ecological Relationships of Plants and Animals*. Oxford: Oxford University Press), we have lacked textbooks and summaries that span ranges broader than traditional subdisciplines (such as pollination biology). Now Herrera and Pellmyr, whose original and meticulous contributions have done much to inspire and shape current research in pollination and dispersal biology, have recruited a distinguished team of authors to assemble a broader view, aimed at upper-division undergraduate students and those starting graduate studies.

Each of the nine chapters is worthwhile; some are extraordinary. I view the book as an essential volume for active researchers, as well as the graduate students who form part of the intended audience. As for undergraduates, I am not sure how well the book will work to structure a course. First, the level of presentation tends to assume advanced knowledge of organismal biology, ecology, and evolutionary theory. Second, whatever discipline the editors tried to impose on the authors was insufficient to produce an integrated feeling or a homogeneous style to the chapters. Given the patchwork nature of the field itself, this is neither surprising nor fatal, but it may frustrate those undergraduates who simply want a unified account delivered in a magisterial voice. More sophisticated readers should be able to derive both interest and pleasure from the diversity of voices present in the work, but even those readers might wish that the editors had imposed more consistency. For example, empirical support for the Janzen-Connell hypothesis is presented in Chapter 3 as being "broad" (p 103), but in Chapter 5 as "equivocal" (p 145). The references cited by the chapter authors do not overlap. Readers deserve some reconciliation of these viewpoints, as well as elimination of the second, unnecessary, near-duplicate figure. Table 1.3 and Figure 2.23 independently discuss a taxonomy of coevolutionary patterns drawn primarily from the work of John Thompson, but the references differ, the