

Book Reviews

Rita Hoots

Department Editor

GENERAL BIOLOGY

Reconstructing Biology. By John Vandermeer. 1996. John Wiley & Sons (New York, NY). 478 pp. Paperback \$34.95.

 Professor Vandermeer states in the Preface that his primary goal is to undermine the ideas of "genetic determinism, neo-Malthusianism, and nature worship" (p. xvi) by arguing that they are unsupported by studies in biology and ecology. The first half of the book is devoted to developing support for the environmental determination of race and gender roles, while the second part argues against human population growth as the cause of poverty and environmental problems.

In preparation for his arguments on race and gender roles, Vandermeer provides background chapters on evolution, genetics (both Mendelian and molecular), and human ancestry. He uses examples of language development in humans (among other things) and phenotypic variability of plants in various environments to establish environmental experience during development as the dominant factor determining final adult characteristics, particularly in behavior.

Thus, he argues, characteristics often associated with race or gender roles are primarily, if not exclusively, the product of environmental interactions,

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not genetics. Indeed, he goes so far as to say, "...most human traits of interest are not currently known to be influenced by genetic factors at all,..." (p. 142).

Most of the information and arguments here are well-presented. Unfortunately, Vandermeer selects the example of a boy who was reared as a girl (after his penis was accidentally cut off) to bolster the primacy of environment in determining sexual identity. Recent evidence, however, appears to indicate that this sexual transformation was not successful (Angier 1997).

The second half of the book is less effective. While Vandermeer provides background in general ecology, much of this material does not connect well to his subsequent discussion of human population, and it barely addresses the issue of "nature worship." His coverage of animal population cycle models, for example, seems only loosely connected to his goals. The chapter on the history of human energy use, while interesting, also seems out of place. His arguments against the modern-day adherents of Thomas Malthus are much more straightforward, however.

Despite clear evidence that global food production has been able, thus far, to keep up with human population growth, neo-Malthusians still contend that "population is the problem." Advocates of this perspective argue, even without global starvation, that Malthus' predictions are already evident in widespread poverty and environmental destruction. If human population growth is not slowed, these problems will continue to grow. Paul Ehrlich (Ehrlich & Ehrlich, 1990) is perhaps the best known advocate for this perspective.

Vandermeer responds with what seems to be a favorite phrase, "This is wrong." His most powerful argument comes not, however, from applying ecological principles but by dissecting political and economic circumstances.

The present global economic system, he argues, separates the producers of goods (principally natural resources) in the Third World from the consumers in the developed world. When this separation occurs, the Third World

simply becomes a source of resources or foreign investment opportunities; it has no control over the use or distribution of those resources and the resulting wealth. This contrasts with a self-contained system where manufacturers must balance the need to keep costs down with the need to pay employees enough so they can buy their products.

The result of such a "disarticulated" system is widespread poverty, environmental destruction, and great disparities in income among Third World inhabitants. Thus, poverty and environmental problems will persist, particularly in the Third World, as long as this system remains, regardless of reductions in population growth rate. Vandermeer uses several examples from Central America to illustrate this scenario.

Although I found many parts of this book interesting, and the issues are certainly important in the modern age, I was left feeling unsatisfied at the end. The book never really comes together as a text, and the two concluding chapters are rather vague and speculative. This is partly due to the unusual combination of topics and their complexity, but may also be a consequence of too much information that is not clearly linked to the questions the author seeks to address.

In general this book is largely free of errors, although some text is apparently missing from the end of page 103, and Figure 14.12 is in Spanish with an English caption. Also, many of the black and white photographs are too small or low in contrast to really see what the captions claim they illustrate.

Vandermeer also has a disconcerting habit of making all-encompassing statements without documentation (e.g. "most people believe," "there is little doubt"), despite his own admonition in the Introduction to ask, "What is the evidence for that?" (p. 15).

Thus, I am unsure about who would or should use this book. Although the perspective presented is primarily scientific, the conclusions reached imply solutions that are essentially social and political. I think the book would more accurately be titled *Reconstructing Society* since the goal seems to be to correct

misconceptions about the factors determining racial and gender roles and the causes of environmental problems, not to reconstruct biology itself. Vandermeyer's book might thus serve as a text for a college course in biological perspectives on race and gender or on the causes of Third World poverty.

References

- Angier, N. (1997, March 14). Sexual identity not pliable after all, report says. *The New York Times*, pp. A1, A18.
- Ehrlich, P. R. & Ehrlich, A. H. (1990). *The Population Explosion*. New York: Simon and Schuster. 320 pp.

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MOLECULAR BIOLOGY

Our Molecular Nature: The Body's Motors, Machines and Messages. By David S. Goodsell. 1996. Springer-Verlag New York, Inc. (175 Fifth Ave., New York, NY 10010). 183 pp. Cloth \$25.

 In *Our Molecular Nature*, David S. Goodsell, a molecular biologist at the Scripps Research Institute, writes for a secondary or college level audience interested in the molecules of life. He does not presume prior knowledge on the part of the reader and writes clearly to explain how molecular structure and function contribute to life. While not encyclopedic, this is the kind of book that secondary and college instructors and their students can use as a reference or for rapid acquisition of background information. The text provides interesting information in usable amounts. The book is organized logically and chapters build on preceding ones.

The first chapter provides not only background information but also a sense of scale for the rest of this well-organized book. It begins with an explanation of cells and molecules, then follows with background information on cellular structures and the nomenclature of many of the molecules found in our cells. The second chapter explains how several enzymes, from chymotrypsin to alcohol dehydrogenase, function. Goodsell also includes cellular information from DNA to molecular chaperones in this chapter. The next chapter describes cellular energy production and recounts the events associated with

cellular respiration and the degradation of several different classes of macromolecules. The chapter titled "Form and Function" explains structural elements, connective tissue, cellular and organismal motility. "Dangers and Defenses" explores the structure and function of a variety of venom and toxin molecules as well as several molecules of defense from immunoglobulins to fibrin. Finally, Goodsell discusses neurotransmitters, hormones and sensation in the penultimate chapter. He concludes with a very short epilogue about molecules and medicine, an area of particular interest for him. A three-page glossary provides information for those with little molecular background. Goodsell also references World Wide Web coordinates from the Brookhaven Protein Data Bank, which many readers may find useful.

While neither encyclopedic nor extremely detailed, this is a book teachers and students will deem user friendly. The organization of *Our Molecular Nature* is logical and the writing is clear. The description of each molecule is limited to two or three paragraphs, each of which delivers pertinent information without overwhelming the reader. Structures mentioned in one chapter and described elsewhere are cross referenced. One or two cross references are inaccurate, artifacts of the editing process. I was impressed with the readability of this book and found myself moving rapidly from chapter to chapter, referencing molecules described in earlier chapters.

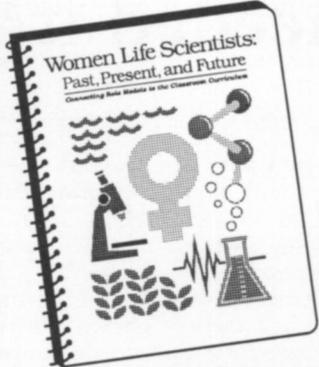
While not detailed enough to provide support for students in advanced college courses, *Our Molecular Nature* is good for more advanced high school courses and introductory college level courses. It is a handy classroom or library reference for high school teachers and instructors of introductory level college courses. I certainly plan to use my copy this way.

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BAT BIOLOGY, MAMMALS, ECOLOGY, CONSERVATION

Bats in Question—The Smithsonian Answer Book. By Don E. Wilson. 1997. Smithsonian Institution Press (470 L'enfant Plaza, Ste. 7100, Washington, DC 20560). 168 pp. Paperback (photos) \$24.95.

 One of my favorite activities during the short Montana summers is to hike in the pine forested hills near my home during the early evening. If lucky, I can spot bats flying overhead with their characteristic short dives, quick turns, and aerial acrobatics that are easily recognizable. I have always wondered where they went to avoid the harsh northern winters and what particular species they might be. *Bats in Question—The Smithsonian Answer Book* did a fantastic job of answering many of the questions I have had about these fascinating crea-



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