


Book Reviews

Rita Hoots

Department Editor

ECOLOGY

Ecoviews: Snakes, Snails, and Environmental Tales. By Whit Gibbons and Anne R. Gibbons. 1998. University of Alabama Press (Tuscaloosa, AL 35487-0380). 200 pp. Paperback \$16.95.

 Whit Gibbons collaborates with his sister, Anne, in presenting true tales worth telling. Here are a hundred stories that present the heart of ecology in a painless, rambling Southern way. Whit Gibbons, a herpetologist, is Professor of Ecology at the University of Georgia, Savannah River Ecology Laboratory. The best stories, and smooth lessons, come from the work of the Gibbonses and their colleagues in cottonmouth country.

Although centered in the South, the book examines our nation's environmental conscience by presenting specific dilemmas arising from the meeting of man and beast in all regions of the country. Most frequently the environmental tales are reports on the work of field biologists. It's obvious that these people enjoy themselves while gathering data on pheromones, coevolution, keystone species, parasite strategy, and other eco-ideas. The reader is exposed to all this while wondering if the investigators will survive loose rattlers under car seats and hungry crocodiles at creek crossings.

The research presented is fun, but is it important? Yes, because the work is linked to educating and enlightening kids about nature. The best parts of the book are those that explain how to make our children environmentally aware and how to let children do ecology, the way they do sports or Nintendo™.


This is a book for those who know too little about ecology and also for those who know too much. Unknowing high school and junior college students would profit from being instructed, with two-page stories, that part of our nation's history is natural history. All-knowing professional ecologists and stodgy professors would profit from being reminded, with two-page stories, that the field is where the fun is.

I've been inside, training critical thinkers: juggling Lotka-Volterra equations, balancing Michaelis-Menton flows, and predicting Hardy-Weinberg equilibria. That won't do; the Gibbons remind me that fieldwork is the soul of ecology and that my job as professor is to engender esteem for biodiversity. I need to drag my students out to where the snakes are, to where they can enjoy the ecoviews.

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GENERAL BIOLOGY

There's a Hair in My Dirt! A Worm's Story. By Gary Larson. 1998. Harper-Collins Publishers, Inc. (New York, NY). 58 pp. Hardback \$15.95.

 Cartoons by Gary Larson are a common occurrence in many biology classrooms. He uses humor to demonstrate many biological principles, which enables the reader to appreciate the irony in nature. Nature is not what it seems to be on the surface or what many students think it is. All is not a happy paradise where everyone gets along with each other and where peace prevails. Humans are not the great all-knowing ones who protect nature. Finally, what a person

thinks is from a human perspective that is biased.

Edward O. Wilson writes an introduction to the book warning readers that there is much more to it than first appears. With that in mind, the reader begins the story of a little worm who finds a hair in his dirt and is disgusted by it and by being a lowly worm. His father proceeds to tell him a story about Harriet, a misguided young lady who lives in the forest. In the story Gary Larson covers the ecological principles of food chains and predation, mimicry, communication, importance of plants, and the role of decomposition. He corrects the common misconception of birds falling out of nests, as well as other issues such as snake repulsion, fires, the public's ignorance of introduced species, toads compared to frogs, and the potential for getting viral infections from wild animals. He presents each point by first giving Harriet's view and then what is really happening.

When reading this aloud to students, the book is long and seems redundant. There is no order in how the ideas are presented which means the reader goes from the predation by robber ants to what flowers do, to the lumberjack's role, back to why birds communicate. One idea jumps to another like a string of cartoons loosely assembled. Fewer ideas organized by topic might have made the book easier to read to students. Although all the ideas are about humans' ignorance of nature, basically the ideas fall into three categories: ecological principles, common human responses to natural happenings, and unwise human behaviors resulting from ignorance. The book has two interludes back to the worms at the dining table, which is relief from the seriousness of the ideas included. Also, on each page Larson does little drawings providing humor from the comments or behavior of the animals or plants. A teacher could omit some pages to accommodate the attention span of his/her students.

The book makes students think about their misconceptions and analyze which ones they have and which ones they did not realize they had. Humor is a tool to look at oneself


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and laugh at the ridiculousness of a behavior or thought. Larson is king when it comes to looking at the natural world in this way, but this time he does it through Harriet and a lowly worm.

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HUMAN ANATOMY

First Cut: A Season in the Human Anatomy Lab. By Albert Howard Carter III. 1997. Picador USA (175 Fifth Ave., New York, NY 10010). 308 pp. Paperback \$14.00.

 For many students, the thought of seeing a cadaver laid out and exposed for the first time raises goose bumps, while further examination of the human form through dissection causes second thoughts about selection of the medical profession. Learning about the human body means looking at it from inside and out, and seeing how the parts are put together for the design and functioning of man. The author follows students in a first year medical school class at Emory University in Atlanta as they begin the human anatomy course and how they react and behave during their initiation to the human body.

Albert Carter is a professor of literature at Eckerd College in St. Petersburg, Florida, who took a semester off to associate with and observe students with their first patients, the latter arriving as donated bodies. Nursing past desires to become a physician, the author instead pursued his literary aspirations, and nostalgically returns to observe the life of the medical students. His anecdotal descriptions written in a series of short chapters capture the emotions and reactions of students at their introductory encounter with the "body." Over time the initial shock and repugnance is gradually transformed into a comradeship, a partnership where the students relate to the cadaver as the essential object needed to learn about life and death.

We watch as the students, overcome with anxiety over the mass of information they must absorb from the dissection, work together and form a learning cohesiveness that enables them to meet the anatomic challenges. Through the narrative the reader is moved by the emotions exposed as the relationships develop and is swept up by the students' accelerating enthusiasm to learn and to succeed. We watch silently as their reverence for their


donated subjects grows, realizing that their competence has advanced through the association. With great insight and sensitivity, this memoir serves as a sociological study in the development and growth of first-year medical students. Their personalities become vivid through the author's masterful and humanistic depictions.

First Cut is strongly recommended for secondary students interested in the life sciences, and as a preview of what pre-med college students might anticipate. Certainly AP students will consume the book in one sitting. For anyone who has ever considered the medical field, this account offers wonderful insights into what will be expected and how students marvelously adapt to the anticipated rigors. The pages are richly illustrated with the majestic woodcuts from Vesalius' *De Humani Corporis Fabrica*.

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MOLECULAR BIOLOGY

The Touchstone of Life. By Werner R. Loewenstein. 1999. Oxford University Press (198 Madison Ave., New York, NY 10016). 366 pp. Hardback \$30.

 Here is a book that finally validates my conviction that a key theme in biology is that one molecule fits into another molecule, which in turn fits with another molecule, and so on. In *The Touchstone of Life*, the biologic pattern of serial fits is in the forefront. However, the real achievement of the book is to give the reader a different lens to view knowledge about biological molecules. That new lens is information theory.

What is information theory? Biologists associate the term *information* with the function of DNA. But the meaning of information in this treatise is more expansive: as a measure of order, it is derived from physics and the second law of thermodynamics, and can be stated in mathematical terms. However, the author skillfully uses word pictures rather than mathematical formulas to make his points.

How can information theory illuminate biology? Biologists know that *order* is a hallmark of life. But when the author explains life's orderliness through the lens of information theory, it can change the way we think about biology. For example, Loewenstein writes, "... It's not energy that counts in biological systems, but infor-


mation..." (p. 58). Didn't we learn at our teacher's knee that energy balance is supreme in life? Yet with information theory, this statement makes sense.

Information theory can give new insights into why macromolecules are put together piece by piece in the cell, why calcium is THE ion for so many biologic purposes, why RNA was probably the first informational molecule, why there is wobble in the codons, how game theory can shape thinking about evolution, and so much more. The author is an expert in cell communications and shows how communication within and between cells can be portrayed as information flowing in interlacing circles, bringing in G-proteins, channels between cells, and even cancer. The writing is clear and coherent. The careful, thoughtful reader of this book will be rewarded with a new way to think about biology.

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POPULARIZING PHYSIOLOGY

Why Geese Don't Get Obese (And We Do). By Eric P. Widmaier. 1998. W. H. Freeman (41 Madison Ave., New York, NY 10010). 213 pp. Index. Hardback \$22.95.

 *Why Geese Don't Get Obese (And We Do)* is actually a small book on animal physiology written on the popular level. The technical jargon, mathematical equations, and elaborate theoretical discussions are missing from the book. What is left is a very understandable and enjoyable presentation of selected topics on animal physiology. Many of these are what we used to call "geewhiz" topics—things that even nonbiologists would generally find fascinating.

The content of the book includes a wide range of topics. Some of these include, for example, metabolism and energy needs, water balance, respiratory mechanisms, and temperature control in warm-blooded animals. Each new topic is presented in a simple, interesting manner and related topics are connected in the discussion. Explanatory notes are also given at the end of the book for those wanting more information or further references.

The book would certainly appeal to nonbiologists who are interested in the subject of animal physiology, but may be turned off by a "textbook approach." For this same reason, the