

Overcoming Innumeracy

Book Review by John Rohe

One of the penalties of an ecological education is that one lives alone in a world of wounds.

— Aldo Leopold, *Round River*

If you thought mathematical equations on population, migration and resource depletion were best left to the nerdy, brainy types in some ivory tower, then think again.

In *Consilience*, Edward O. Wilson attempts to bridge the gap between the humanities and the sciences. He states: "We are drowning in information, while starving for wisdom." To forge a union among the disciplines it will be necessary to assail "innumeracy" (a term commonly invoked by noted biologist Garrett Hardin). Innumeracy is the mathematical equivalent of illiteracy.

Conventional textbooks often instill an unexamined conviction of the business community: economic reports and business forecasts usually assume that growth is good and more growth is better. These reports echo an oversight in the educational system which can only be overcome if we can engender an appreciation for basic math. We know that a finite planet cannot accommodate perpetual growth, yet this false assumption underlies many false conclusions.

Environmental awareness requires us to overcome inhibitions about math. How else can we knowledgeably respond to destructively naive claims. For example, Rush Limbaugh asserts that pollutants from volcanic eruptions dwarfs those produced by human activity. *Environmental Issues* enables its reader to calculate the

John Rohe is an attorney in Petoskey, Michigan, with a longstanding interest in environmental concerns. He is author of A Bicentennial Malthusian Essay: Conservation, Population and the Indifference to Limits. Copies may be ordered from The Social Contract Press, 1-800-352-4843.

total CO₂ emissions from Mt. Pinatubo that equal .3% of the annual CO₂ emissions by human activity. McConnell and Abel should find a receptive market among those intimidated by numbers.

With the precision of a technician and the compassion of a playwright, this book deftly weaves through an otherwise tangled web of mathematical uncertainty. In a step-by-step process the authors carry us through a series of "story problems." For example, the book systematically works through math problems such as:

- Using the present world population growth rate, how long will it take for humans to reach a density of one person per square meter of dry land?
- What is the incremental additional drain on fossil fuels by the increasing sales of sports utility vehicles?
- What will be the impact of 300 million additional motor vehicles in China?

**Environmental Issues:
Measuring,
Analyzing and
Evaluating**

by Robert L. McConnell and
Daniel C. Abel
Englewood Cliffs, NJ:
Prentice-Hall, Inc. 1999
205 pages, \$25.00



- What is the loss of electrical energy attributable to the U.S. discarding 50 billion aluminum cans annually?
- What volume of water is consumed by our perceived need to maintain lawns?
- How long would fossil fuels last if the rest of the world were to adopt the consumption patterns of the United States?
- What is the thermal expansion of sea water, and how would sea level be affected by a one degree Centigrade rise in sea water temperature?

By hiding behind obscure equations the mathematician can easily alienate anyone. To dispel the mystique of math for a layman requires an affinity for simplicity. These authors bring this affinity along with a compassion for future generations.

The book is compatible with a college curriculum, however it could also be used in advanced high school

programs. It is a valuable resource for anyone wondering whatever happened to critical thinking in America. The analysis and synthesis of ideas in this book represents a disciplined thought process reduced to its bare essentials.

McConnell and Abel apologetically comment on a bias in their orientation. Admittedly, the book espouses an environmental ethic and a regard for the future. In an educational system steeped in the traditions of the growth ethic, an apology may be in order, but not from these

authors.

The only shortcoming about this book is its name. The title *Environmental Issues* becomes pedestrian, commonplace. And it lacks clarity. The following title, while lacking brevity, is respectfully offered as a substitute: *Mandatory Math for Politicians, Parents, Anyone Hoping to Someday Become a Respected Ancestor, and a Prerequisite Manual for an Informed Electorate.* -//-