



A contrarian environmentalist

The Skeptical Environmentalist: Measuring the Real State of the World, by Bjørn Lomborg. New York: Cambridge University press (2001). 515 pp. \$69.95 (\$27.95 pb).

Review by

BERNARD L. COHEN

ARE WE DEPLETING the Earth's resources at a dangerous rate? If that were so, these resources would become scarcer, causing the price to rise. In 1980, University of Maryland economist Julian Simon offered to bet \$10 000 that any given raw material—to be picked by his opponent—would have dropped in price at any specified distant future time, also to be picked by the opponent. His challenge was accepted by three prominent predictors of impending environmental doom, stating that "the lure of easy money can be irresistible." They staked their bets on chromium, copper, nickel, tin, and tungsten, and picked the time as 10 years in the future. In 1990, they had to pay off—all five commodities had dropped in price. But they would have lost almost regardless of their choice of materials or time frames: Price indexes on metals and on industrial items (e.g., cotton, timber, rubber) have been trending downward for as long as data have been available. There is no sign that any of these is "running out" even though our consumption of them is rapidly rising as population increases and living standards improve.

This is just one example of how politically oriented environmental activists, with minimal knowledge or interest in science or engineering, have been claiming that humankind is imperiling its future on Earth. They have been getting widespread media coverage for such claims, enough to convince the majority of the public and to garner generous financial support from non-profit foundations. But how devastating are these threats—overpopulation, inadequate food supplies, deforestation, depletion of mineral resources, shortage of fresh water,

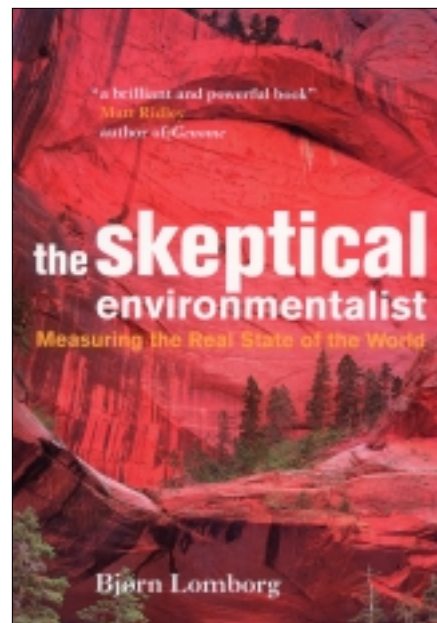
Bernard L. Cohen is a Professor-Emeritus of Physics and of Environmental and Occupational Health at the University of Pittsburgh, in Pittsburgh, Pa. He is a former Chairman of the ANS Environmental Sciences Division and recipient of the ANS Walter Zinn, Public Information, and Special awards. His publications include six books and more than 300 journal articles.

This book marshals reams of statistics to refute those who are doomsayers about Earth's situation.

air pollution, water pollution, pesticides, fertilizers, other chemicals, shortage of landfill capacity, reduced biodiversity, global warming? Addressing these issues is the subject of *The Skeptical Environmentalist*, by Bjørn Lomborg.

There have been several books responding to these issues by scientists, economists, and other professionals, including the aforementioned Julian Simon (*The State of Humanity*, Blackwell Publishers [Oxford], 1995). What makes this book different is that Lomborg is a young, left-wing, vegetarian, backpacking environmental activist from Denmark who is a former member of Greenpeace and was sold on its litany of impending disaster. As an Associate Professor of Statistics at the University of Aarhus, he organized a student research group aimed at demonstrating the errors in the Julian Simon book. But after a few months of this effort, he became convinced that Simon was basically correct and the impending disaster litany of Greenpeace, derived from sources like the Worldwatch Institute and World Wide Fund for Nature, and from well-known academic environmental activists like David Pimentel (Cornell) and Paul Ehrlich (Stanford), were highly misguided. He found that they were using very selective data and wildly speculative estimates to support their preconceived conclusions.

After further research, Lomborg began writing articles for newspapers, giving rise to intense public debate spreading to practically all newspapers in Denmark. After about 400 newspaper pieces, he authored a book in Danish. The present book is an English translation with updates. *The Economist* (Sept. 8, 2001) started its book review with: "This is one of the most valuable books on public policy—not merely environmental policy—to be written for the intelligent general reader in the past ten years." The Science section of *The New York Times* (Aug. 7, 2001) ran a feature article on the book by Nicholas Wade. Endorsements have come in from all over the world, and in October 2001, Cambridge University Press, the publisher, sent Lomborg on a media and lecture tour of North America, with prescheduled activities in Toronto, Washington, New York, Pasadena, and Los Angeles. From the publicity the book is getting, it appears to be



the most important attack to date on the environmental alarmists.

The book is heavily documented, with nearly 3000 footnotes citing about 2000 bibliography references. There are 173 figures, essentially all of them quantitative plots of relevant data vs. time, with the source of the data always referenced and generally recognized as reliable. Beyond citing statistics, explanations are offered and social and psychological issues are considered. For example, how can we consume more and more of obviously finite resources without running out? The technology of finding and recovering resources is constantly improving, and technology advances to provide substitute, and often improved, materials.

Some of Lomborg's conclusions that run counter to the litany of the environmental activists are:

- In the Third World, the percentage of people living in poverty is declining, from 50 percent in 1950 to 24 percent in 1998, and average wealth has more than tripled in this period. Also declining is the percentage of people who are starving, 35 percent in 1970 to 17 percent now and 6 percent projected to 2030. Average daily food intake has increased from 1900 calories in 1960 to 2700 calories at present. The per capita income was only 14 percent of that

in the developed world in 1960, but by now it is 20 percent. Illiteracy has decreased from 75 percent to less than 20 percent.

■ Every major type of air pollution in the United States has been decreasing from 1970 to now, fine particulate by 40 percent, lead more than tenfold, sulfur dioxide threefold, ozone by 25 percent, nitrogen dioxide by 35 percent, and carbon monoxide fourfold. All were also decreasing before 1970, and all of this was with the population increasing by more than a third, the economy more than doubling, and automobile driving doubling.

■ The 250 000 birds killed by the *Exxon Valdez* oil spill was equal to the number killed every day in United States by their flying into plate glass, or the number killed by cats every two days in Britain.

■ After correcting for aging of the population and smoking effects, the U.S. cancer death rate has decreased by 25 percent since 1950.

■ Pesticides in food kill only 7 percent as many Americans as drownings in bathtubs.

■ Despite claims that half of all species will be gone in 50–75 years, which would be a crisis in biodiversity, the true loss will be about 0.7 percent over the next 50 years.

■ Only about 2 percent of cancers in the United States are caused by pollution.

■ The fraction of the Earth covered by forests has increased, not decreased, since 1950. Tropical forests are being reduced by 0.46 percent per year, far slower than claimed by the alarmists.

■ The average wealth of a U.S. citizen has improved thirty-sixfold since 1789.

As an example of social commentary, Lomborg points out that developing countries are entitled to remove some of their tropical forests to spur their economic progress since the developed world destroyed much more forestry in its development. His position is that if the developed world wants to preserve more tropical forests, it should pay for this with economic aid to the developing countries. As another example, he shows at great length that the cost of global warming is far less than the cost of following the Kyoto protocols for reducing it. He uses several pages to respond to Al Gore's book *Earth in the Balance*. His predictions for the future are uniformly optimistic.

While all of this is probably "music to the ears" for most readers of this magazine, the section on energy is much less pleasing. In his very extensive studies, he has obviously given less than adequate attention to nuclear power, devoting less than one page to it. He gives it credit for low pollution and avoiding greenhouse gas emissions, but he cites waste disposal and proliferation as serious problems in a discussion covering only one-eighth of a page. More space than that is devoted to fusion, which he seems optimistic about, although recognizing that it is

far in the future. There is a quarter-page on breeder reactors, concluding with a downbeat emphasis on proliferation problems. His one-eighth page discussion of costs claims that nuclear power is twice as expensive as power from fossil fuels. But recall that all of the above nuclear discussion is compressed into less than a single page.

I should comment on his cost figures. They reference a table in one of my papers with the following total costs (in 1987 dollars) in mills/kWh: nuclear median experience—77, best experience—44, APWR—38, two-unit AP600—40, two-unit coal—48. He considers only my "median experience" number, based on plants built during a time of extreme regulatory turbulence with cost consequences fully discussed in my paper, and applies an increment based on a number given by an antinuclear activist. He completely ignores my three other nuclear examples. That is certainly selective use of data.

His solution to long-term energy supply is in renewables, especially solar and wind, each getting more coverage in the book than nuclear. He briefly notes the storage problem with these, but says that this can be solved with pumped hydro and production of hydrogen. He does not add the costs of these to the costs of solar and wind; he is very optimistic about the future costs of solar and wind, in contrast with his extreme pessimism about nuclear costs. The end-of-chapter summary on energy does not even mention nuclear fission. It emphasizes that fossil fuels will be available for a very long time, and "just as the stone age did not end for lack of stone, the oil age will eventually end but not for lack of oil. Rather, it will end because of the eventual availability of superior alternatives." The alternatives he refers to here are renewables, fusion, or some presently unknown technology.

The Skeptical Environmentalist is a very valuable book if read by its intended audience, the general public and especially activists in the environmental movement. They can easily relate to it, and it would increase their knowledge tremendously. Because of the publicity it is getting, it may be read by them, which would make it a very important book. It is somewhat useful to technologically literate people for the references it contains on a very wide range of subjects. But Lomborg is not much of an expert on any of these subjects, so one must not assume that the references are among the more reliable ones in a given area.

I most strongly recommend this book be given as a gift to intelligent people who depend on media and propaganda for their information. Reading it may even "turn them around" in their way of thinking. But the gift should be accompanied by a warning that Lomborg knows essentially nothing about nuclear power beyond the litany spread by his former environmentalist colleagues. ■