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AN UNBALANCED DEBATE

Scarcity or Abundance? A Debate on the Environment. Norman Myers and Julian L. Simon. Norton, New York, 1994. 254 pp. $21.00 (ISBN 0-393-03590-5 cloth).

This book is structured as a debate between professor of business administration Julian Simon and environmentalist Norman Myers. Each author in turn presents a preface, a predebate statement, the debate itself, and a postdebate statement. The topic could not be more important: the future of the species *Homo sapiens*. The debate format is both a strength and a weakness in exploring this issue.

The book does an admirable job of exposing the two distinct arguments, but the debate format puts the issues in stark, confrontational contrast and exhorts the reader to decide who is right. This format appeals to journalists trying to achieve balanced coverage, but ironically the complex and important issues that are the subject of the debate (e.g., population growth and biodiversity loss) become muddied rather than sharpened when subjected to this format. They are not black-and-white issues, and accentuating the debate hinders the participants' ability to paint a richer, multicolored picture and achieve consensus on appropriate courses of action. In addition (and strikingly in this case), the journalistic search for balance often pits a broad scientific consensus against a few crackpots willing to take the opposite position—hardly an accurate picture of the true balance of opinion in the community. We do need a thorough and ongoing discussion, but the format should be one of truly balanced and interactive dialogue rather than confrontational debate in the journalistic style.

The Simon-Myers debate is truly unbalanced. Myers represents the broad scientific consensus that unchecked human population growth and biodiversity loss are potentially serious problems that we must address because their impacts, while uncertain, are potentially huge and irreversible. Simon represents an extreme technological optimist position (a small minority among scientists) that we do not need to worry, because the future will take care of itself just as it always has. Simon's only supporting data are selected past trends, most of which start in 1800, and the blind faith that these trends are likely to continue into the indefinite future—a dangerous technique that can be described as driving while looking only in the rearview mirror. Simon argues that we just need to take a long enough historical view to see that all trends in human material well-being are improving. But if one adheres to Simon's advice and takes an even longer-term view, one sees that most historical civilizations (e.g., Egyptian, Mesopotamian, Roman, Olmec, Chacoan, and Mayan) have collapased due to inattention to the degradation of their resource bases (Pointer 1991, Tainter 1988, Yoffee and Cowgill 1988). The question is: Can our current global civilization break from this trend and achieve sustainability?

The fundamental differences between Simon and Myers are not technical, they are differences of vision. Myers envisions a physically finite planet that we must manage for sustainability. Simon envisions a world of no constraints (except the number of people), where humanity is ultimately freed from its earthly bonds to explore and colonize the universe at will forever.

This Star Trek–like vision is popular and appealing to some. But how realistic is it, and does it make sense to bet the farm on it? NASA's budget is tenuous at best, and the prospects for space colonization seem remote. Even if we do eventually manage to explore the stars, the prospect is far enough in the future that we cannot use it to avoid resolving current earthly problems.

Simon's extreme, blind optimism about the future often borders on the ridiculous. For example, consider the following quote by Simon:

> We now have in our hands—in our libraries, really—the technology to feed, clothe, and supply energy to an ever-growing population for the next 7 billion years. Most amazing is that most of this specific body of knowledge developed within the past hundred years or so, though it rests on knowledge that had accumulated for millennia, of course.
>
> Indeed, the last necessary additions to this body of knowledge—nuclear fission and space travel—occurred decades ago. Even if no new knowledge were ever invented after those advances, we could go on increasing forever, improving our standard of living and our control over our environment. The discovery of genetic manipulation certainly enhances our powers greatly, but even without it we could have continued our progress forever. (p. 65)

Simon obviously does not understand large numbers and exponential growth. Seven billion years is a very long time (the estimated age of the universe is only around 10 to 20 billion years; Trefil 1985). At a 2% annual growth rate the physical biomass of humans would approach the mass of the entire universe in only tens of thousands of years[1], hardly a realistic prospect by even the wild stretches of imagination of which Simon seems to be fully capable.

There are also several ironies in Simon's position. For example, for Simon's predictions to work, he asserts, we have to worry about our problems. Problems always result in solutions, according to Simon, so bring on the problems—we will always solve them, and things will get

[1]It is instructive to work through the calculations. Assuming a current human population of 6×10^9 people with an average mass of 80 kg, the current human biomass is approximately 5×10^{11} kg. At a 2% rate of exponential growth, the mass of humanity at any time t in the future = 5×10^{11} kg * $e^{(.02*t)}$. The mass of the earth is approximately 6×10^{24} kg, the sun is 2×10^{30} kg, a galaxy with ten billion suns is 2×10^{40} kg, and, just as a guess, assuming the visible universe has the equivalent of 100 trillion galaxies, its mass would be 2×10^{54} kg. The time from the present at a 2% exponential growth rate required for the human biomass to equal that of the entire earth is 1510 years. To equal the mass of the sun, 2140 years are required. To reach the mass of the galaxy, 3290 years are necessary, and the mass of 100 trillion galaxies are reached in only 4900 years, less than five millennia. Seven billion years of exponentially growing human population is obviously not even close to conceivable.

continuously better. But there is also a "what, me worry?" attitude embedded in the "always" part of this assertion. The irony is that we have to think and act as if there were problems and work to find solutions—just as Myers is doing—rather than adopting the blind faith attitude that things will always work out (as Simon does). No matter who is right, we have to think and act like Myers, even for Simon's own predictions to have a chance of coming true.

A second irony is Simon's eagerness to bet on the outcome of his predictions. He states, "Would I bet on it? For sure. I'll bet a week's or month's pay—anything I win goes to pay for more research—that just about any trend pertaining to material human welfare will improve rather than get worse" (p. 115). While Simon often says he will bet anyone any amount, he has so far refused to accept a $100,000 bet from Paul Hawken[2] that living systems will continue to deteriorate over the next ten years. Much has been made of Simon's actually winning a $1000 bet with Paul Ehrlich, John Holdren, and John Harte that the market prices for five metals (copper, chrome, nickel, tin, and tungsten) would fall between 1980 and 1990. Although these metals represent an insignificant part of the problem, their market prices are not necessarily a good measure of long-term scarcity. As Myers points out, they "do not reflect all costs of production and consumption." Full social cost pricing would probably tell a different story from market prices. Also, if one is liquidating assets (as we are doing with many natural resources), then one would expect market prices to fall, as they would in a fire-sale situation.

But most important, Simon's bet offers trivialize a critical matter. The magnitude of the bet we are really being asked to make on our species' future is inconsistent with Simon's cavalier betting attitude. We do not have a spare planet waiting in the wings in case Simon loses, and the first rule of a successful gambler is not to wager more than you can afford to lose. With the future of the species at stake (not just a "week's or a month's pay"), it is a bet we cannot afford to take. The more rational position here, in this case of extreme uncertainty and ultra high stakes, is one of skeptical precaution. Let us assume, as Myers recommends, that there are likely to be problems and let us allow ourselves to be pleasantly surprised if they can be worked out, or, even better, if they turn out not to be as big as we first thought. But the most irrational thing we can do is to bet on our ability to solve all future problems, as Simon would have us do.

There is more grist for argument in this book than I have been able to touch upon here. The debate format accentuates conflict and argument, at the price, I fear, of deeper understanding and consensus building. We need much more of the latter and much less of the former to really address the critical problems raised in this book.

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[2]P. Hawken, 1995, personal communication. The Natural Step, Cambridge, MA.

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THE BROWN CRUSADE

The Green Crusade: Rethinking the Roots of Environmentalism. Charles T. Rubin. The Free Press, Macmillan, New York, 1994. 312 pp. $22.95 (ISBN 0-02-927525-3 cloth).

Charles T. Rubin is associate professor of political science at Duquesne University in Pittsburgh, Pennsylvania. Geneticist Garrett Hardin brought the book to my attention. Rubin describes Hardin's entry into the ethical maelstrom posed by current human excesses. But praise for *The Green Crusade* on the dust cover from Jeffrey Salmon, executive director of the Marshall Institute; Frederick Seitz, former president of the National Academy of Sciences; and Richard Lindzen, a scientist at the Massachusetts Institute of Technology—no friends of the environment—ran up warning flags.

Rubin has entered the fray with a candidly self-described bias: "Where once I saw a movement founded in science, now I see a utopian political program. Where once I felt that the problems were obvious to all, now I understand that different situations can appear to people to be problems depending on how they want the world to be in the future. Where once I knew exactly what grand solutions would solve all environmental ills, now I believe there is a great deal to be said for modest expectations and muddling through" (p. 9).

That, too, is a political program, close enough to the neoconservative agenda to bring political plaudits from the far right. It has also clouded the thinking in much of this often scholarly and provocative book.

Rubin describes the dominant personalities of science and conservation of the recent three decades including Rachel Carson, Hardin, Barry Commoner, Paul Ehrlich, and The Club of Rome. He is not burdened by science, by curiosity about it, or by sympathy for science or scientists. He labels his subjects *popularizers*, which he uses as a pejorative term for people who aspire to what he considers to be a political agenda: improving the workings of the world.

His treatment of Carson is superficial slander straight from the propaganda of the pesticides industry. She provided an "unbalanced, biased" review, according to Rubin, who selected virtually any scientist's criticism as valid and a sound basis for castigation. There is no recognition of Carson's brilliance in assembling shards of data and insights from her own experience to offer a sharply divergent and meticulously accurate analysis that stands today as correct as it was when her book *Silent*