

PREACHING FOR THE PLANET OR JUST SPINNING OUR WHEELS

Ehrlich, Paul R., and Michael Charles Tobias. *Hope on earth: A conversation*. University of Chicago Press, 2014.

Barnosky, Anthony D. *Dodging Extinction: Power, Food, Money, and the Future of Life on Earth*. Univ of California Press, 2014.

Sabin, Paul. *The bet: Paul Ehrlich, Julian Simon, and our gamble over Earth's future*. Yale University Press, 2013.

It is urgent to convince everyone that environmental issues, especially climate change, are of paramount importance. Reading these three books reminded me that it isn't just about getting the science right. We need to avoid two problems. The first is the "Culture wars", in which the Environment increasingly gets bundled with liberal and left-wing politics. The second I call "Carbon fatigue", the tendency of people, even sympathetic ones, to tune out climate-change science; it's not just the bad news but all those numerical details are hard work. That said, there are times we have paid a high price for not having our science complete and our forecasts right.

Hope on Earth: A conversation is a ramble between various topics at Rocky Mountain Biological Laboratory (RMBL) featuring Paul Ehrlich and Michael Charles Tobias with a short visit by John Harte. There are frequent excursions into animal sentience, the extinction crisis, Ehrlich's butterfly work and Harte's 30-year climate-change experiments at RMBL. As someone who has himself written on the relationship between environmentalism and animal advocacy (Halley, 2015), I was interested in the dialogue about animal sentience. Although I felt that the choice to eat free-range chicken as a step towards better animal welfare was unfairly given short shrift, there were good stories. For example, the cannibalistic chimpanzees that seemed to repent, walking 2 miles and dropping the body of their victim at the doorstep of Jane Goodall. Calling on a higher power for redemption or the beginnings of hooliganism? There are lots of interesting things like this.

After more (and more) about climate change, we get plenty of opinions on other wedge issues: race, gender, abortion, atheism and gun control. Some of these wedge-issues are subject to considerable repetition. It occurred to me that this is not a book you could give to, say, a conservative Republican to try to win them over on climate change or biodiversity loss. The tone becomes strident and abrasive at times on all sorts of issues that have nothing to do with the environment. Gun owners and social conservatives are common targets.

Anthony Barnosky's *Dodging Extinction: Power, Food, Money, and the Future of Life on Earth* could certainly not be accused of setting out to cause offence. Six years ago, I put two of Anthony Barnosky's papers (A. D. Barnosky, Koch, Feranec, Wing, & Shabel, 2004)(A. Barnosky, 2008), both about extinctions in the Pleistocene, on my students' reading list prior to the class excursion for our Applied Ecology course. There is a natural history museum near the lignite mines of the power stations at Ptolemaida, in Northern Greece, because numerous megafauna remains have been

found above the lignite. Our excursions, with a commentary by Barnosky, were a chance to visit the Pleistocene story as well as the theme of CO₂ and even to combine them. The excursions have been stopped (Greek economic crisis) but Barnosky remains on the reading list. I still drive across the plain of Ptolemaida. I hardly notice those big smokestacks (and their deadly emissions) because I am dreaming of mammoths and *Homotherium* and *Elephas antiquus*, dreaming of how it was 160,000 years ago. I blame Barnosky. One is supposed to extract dull facts from scientific articles, not distractions to dream. Just as well the road is straight!

Dodging Extinction is about the 6th mass extinction, the one being caused by us. How we can dodge this huge bullet headed in our direction? There have been many books written on this subject. Do we need another? Barnosky's unique approach is via "global change issues ... primarily from a paleobiological perspective". This book combines his own research insights with stuff he gathers from lots of other papers and reports.

The first three chapters are mainly about extinction stories in an evolutionary context. From some street-level stories of Galapagos tortoises to the big five mass extinctions, we learn that current anthropogenic extinction rates are comparable with those found in the big five mass extinctions. Evidence also shows that all of the big five were preceded by major buildups of CO₂. The changes we are inducing are on par, even with those that preceded the Permian cataclysm. In a chapter entitled "Power", Barnosky introduces that utterly fascinating (and chilling) account (originally published in his 2004 paper in *Science*) that gets quoted by many people I talk to. The growth of human biomass largely matched the loss of non-human megafauna biomass until the end-Pleistocene extinction (~12,000 years ago) when total megafauna biomass crashed, because many non-human megafauna species suddenly disappeared. However, human biomass continued to rise. After the crash, the global ecosystem gradually recovered into a new state where megafauna biomass was concentrated around one species, humans, instead of being distributed across many species. Pre-crash biomass levels were finally reached just before the Industrial Revolution began, then skyrocketed above the pre-crash baseline as humans augmented the energy available to the global ecosystem by mining fossil fuels.

From the middle of chapter four, he turns more to an analysis of our current situation, firstly the harnessing of energy in a sustainable way. How can we adapt our food requirements, and our money system, destructive in their current configuration, so as to avoid the 6th extinction? Chapter 7 is a description, a speed history and a polite rebuttal of the DNA dreamers' notion of de-extinction. While it might be possible to recreate the genome, what then? Even to bring a passenger pigeon back from extinction seems difficult: how do we recreate their chestnut forest habitat? how should we get rid of all the starlings that replaced them? So, bringing back any Pleistocene megafauna would certainly be a mammoth endeavor!

When writing about the sixth extinction, the theme is so vast and so terrible that one could find a justification for almost any style: seriousness, cheerfulness, fury, comedy or anguish. Barnosky situates himself squarely between the first two. He

works hard to cultivate an approachable style to the point that it gets somewhat chatty in places (“it’s here that things get tricky”...). I rather liked that *gravitas* present in his more academic writings. Barnosky writes with great power whenever it involves paleobiology and especially when there is global quantitative analysis involved. When he turns to modern issues the result is mixed. Some of his sustainability and conservation analyses are a bit heavy going. Though full of useful and interesting anecdotes, I could feel that *carbon fatigue* gaining on me. Sometimes when reading we-can-save-the-planet-together books, one gets the sinking feeling that unless our opponents stop blocking environmental legislation, we are just spinning our wheels.

The next book *The bet: Paul Ehrlich, Julian Simon, and our gamble over Earth's future* is for those who are afraid we might be just spinning our wheels. It reminds us that there are some in this world who do not even believe in an extinction crisis, or any other environmental crisis. One such was the late Julian Simon. For many, September 1990 was a dark moment of environmental history. That was when Simon, notorious cornucopian economist, won his bet. Simon had challenged environmentalists to a bet “If you will pay me the current market price of \$1000 or \$100 each, of any standard mineral or other extractive product you name, and specify any date more than a year away, I will contract to pay you the then-current market price of the material. How about it, doomsayers and catastrophists?” (Simon, 1981) Ehrlich and his colleagues John Holdren and John Harte accepted Simon’s offer, choosing five metals over a 10-year span: chromium, copper, nickel, tin and tungsten (Ehrlich, 1982). Between Ehrlich’s chosen dates, the prices of all these commodities fell. Simon received a cheque from Ehrlich for \$576.07, but the bragging rights were priceless.

Paul Sabin, associate professor of History in Yale, has gathered the larger story of this drama in his book, which should be on the reading list of anyone who cares about our environment and how to mobilize humans to help. The book is entertaining, illuminating and chastening. The six chapters skillfully weave into the story of the two huge egos and of their clash and of the wound it left behind. Sabin treats both his subjects with respect and by the end of the book we can sympathize with either or with both. Also, he avoids casting the last stone. While this is a scholarly book – a quarter of the 300 or so pages are devoted to footnotes and references – the style is accessible. For me, the end came too soon.

Paul Ehrlich became something of a high priest for the rapidly-growing environmental movement in the 1970s following his book *The Population Bomb*. His confrontational, entertaining and humorous style made Ehrlich a media sensation. Ehrlich’s message was simple – humans were approaching the limits foreseen by Malthus, urgently we needed to address the problems of overpopulation and overconsumption and to stop abusing the environment. This was a message whose time had come and it rapidly gained traction. By contrast, Julian Simon was languishing in obscurity even as Ehrlich was drawing audiences of thousands. Simon, then a professor of Economics & Marketing at the University of Illinois-Urbana, had been working also for population control to combat poverty but was unable to find good evidence linking population to poverty. Simon started to think

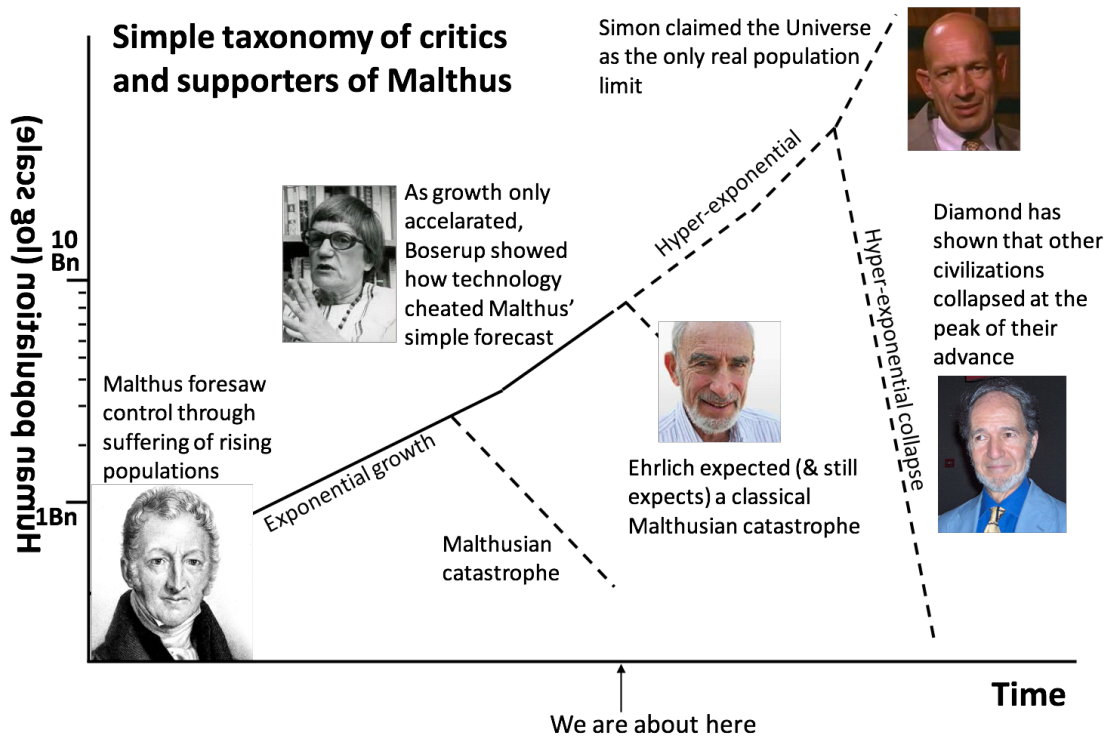
that the evidence was actually the reverse. In 1970, Simon had a kind of epiphany in which he switched to thinking of people as a great resource. Simon had been suffering from serious depression. But his epiphany now powered him out of depression and propelled him into a prophetic crusade against the Ehrlich and the “doomsayers”. His emotional chemistry with Ehrlich was bad from the start. As time went on it became worse, reaching a crescendo in the pages of *Social Sciences Quarterly* where the famous bet was placed.

The Ehrlich-Simon debate reflected also the clash between the iconic presidencies of Jimmy Carter and Ronald Reagan. The Environment was once a bipartisan thing in US politics. In the 60's and 70's even Richard Nixon, a pragmatic president who saw political potential in this popular movement, pushed through various new environmental legislation and earmarked 10 billion dollars for cleaning up water. These plans didn't satisfy Ehrlich, who described them as “hilarious”, but they started to take heat from business interests, so in 1970 Nixon started to back off from the Environment. “I have an uneasy feeling that perhaps we are doing too much”, Nixon confessed to H.R. Haldeman. Carter, however, was a true believer. As well as passing a raft of new environmental legislation Carter believed government should lead from the front. Under newly-installed solar panels, White House staffers were expected to live frugally. One of the many amusing stories Sabin tells is how national security advisor Zbigniew Brzezinski would move a lamp closer to the thermostat in his office in order to get the air conditioning to turn on sooner. The backlash foreseen by Nixon came under Ronald Reagan. The solar panels were removed as Reagan started to roll back all the legislation of Carter. As public pressure increased, Reagan began to moderate and drift back towards the centre. But the damage had been done. The polarization of US politics had been started.

Simon won his bet in 1990 and we in the environmental movement got egg on our faces. Sabin suggests that metals were a poor choice because of their high volatility – a deepening shortage crisis would be hard to spot. Many say that on chance alone Ehrlich should have won, that Simon was lucky.

But who was really right? Julian Simon, to his credit said that what he was expecting people to believe seemed to argue against all logic and commonsense. But Simon's provocative stance is built on the work of major economists such as Ester Boserup and Simon Kuznets. Boserup in particular had raised serious challenges to the arguments of Malthus (Boserup, 1965). Boserup interpreted data for agriculture that show little correlation of human poverty with population and theorized a staircase of technological innovations that allowed population to grow beyond the Malthus limit. Simon pushed this argument to the limit: only the size of the universe was a real obstacle to the expansion of human numbers. Even Sabin doesn't buy this. But human population through the 20th century has continued its hyper-exponential trajectory, arguably with increasing levels of wealth. Classical ecological population theory exemplified by the logistic equation is based on commonsense and predicts that as population increases there should be a gradual slowing due to limiting factors. Now if logic and commonsense say one thing and the facts say something else, what are scientists supposed to do? We are supposed to find a logical solution that encompasses the awkward facts through new theories and models. Jared

Diamond (who does not appear in this book) has noted that many extinct civilizations did not go into decline but collapsed right at their peak (Diamond, 2011) something not foreseen in the logistic equation. Hern has argued that regarding the appropriation of resources by human civilization (in its current configuration) the correct analogy is cancer, something that exhibits hyper-exponential growth followed by collapse (Hern, 1999). Thus, the staircase of techno-fixes itself might peak and enter a cascade of hyper-exponential decay. Both Simon and Ehrlich might be right, just on different sides of a hyper-exponential peak. But a coherent theoretical perspective is needed and we don't have one.



A great fissure has opened up in environmental politics both in the US and elsewhere. Nobody has fully explained this Culture war. Why have the Republicans (the party of Theodore Roosevelt) become so anti-Environment? Sabin does not fully explain, but highlights the destructive power of the Ehrlich-Simon clash and thinks that both bear some blame for fuelling this war. He also quotes historian Naomi Oreskes who points out that the hell-bent pursuit of a scientific trump card by both sides, but mainly the Simon camp, has excluded other human systems such as aesthetic and moral choices. I would have liked to have seen more of this. But the book stops there.

Social conservatives, cornucopians and oil-business people are among those liable not to give serious consideration to the environment, for very different reasons. So, could I give any of these books to such opponents? The book of Ehrlich & Tobias is mainly for the converted. You could not give it to a cornucopian or social

conservative. I could give Barnosky's to someone already wavering or on board and wanting to solve environmental problems or who has a taste for epic themes. A close colleague has already sent *The bet* to oil-business friends in Calgary (who think the Alberta tar-sands project is a wonderful thing). I could give *The bet* to anyone: it is a conversation starter for the Environment.

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