

Global Warming, for the New York Review of Books

I wrote this letter (unpublished) in response to an article in the New York Review of Books by Freeman Dyson, who was reviewing a book by William Nordhaus, "*A Question of Balance: Weighing the Options on Global Warming Policies*", and one by Ernesto Zedillo, "*Global Warming: Looking Beyond Kyoto*" (June 12, 2008). The environment is a subject of great concern to me, and so even though my expertise on the environment is limited mainly to the aesthetic, I was motivated to join the discussion, and not for the last time. Passing reference is made to another article by Dyson, "Our Biotech Future", in the New York Review of July 19, 2007. Links to both articles are given below (with further links within the articles to the letters written in response). Below the links are a few remarks not included in the letter.

Dear New York Review of Books:

I have been following the dialogue about global warming with an interest exceeded only by that in the elections, now concluded. Given that the editors mention a future exchange, I hope this late letter has some chance to contribute. Please pass it on to the principals with my appreciation, even if you don't print it.

First, a question of mere fact, or how to interpret one. Professor Dyson mentions that if "one quarter of the world's forests were replanted with carbon-eating varieties of the same species..." atmospheric CO₂ "would be reduced by half in about fifty years." Half of exactly what, the absolute quantity in PPM, currently over 380? Or half the increase since, say, 1900, when things really started to accelerate? If the former, that would bring us down to around 190 PPM in 2110 if we start in 2060. Would that be considerably lower than it has been for at least a few millennia prior to the industrial revolution? We don't see much before 1960 in the graph, but from the look of that curve, if we took it back to 1800 or so, I'd say it doesn't go much below 250. How far down do we want to go? (I've seen invoked, facetiously, the rights of plants which used to enjoy 2000 PPM back in the Late Cretaceous.)

These numbers aside, Prof. Dyson's review takes my breath away with this tree proposal itself. In explaining the work of Carl Woese last year in "Our Biotech Future", he described the era at the very beginnings of life on Earth, before speciation, when genetic material was transferred laterally between entities, in a marvelous anarchic stew – information new and exhilarating to me – and drawing an analogy with our current sharing via open source. He also told us of the home biotechnology that, before long, will be practiced by countless do-it-yourselfers. (I still find this fairly scary, and think he should say more about the risks, but at least he gave me a better idea of biotech's potential.)

He does it again, in the GW article and the subsequent discussion, in reviewing some of the "low-cost backstop" proposals. Besides the carbon-eating trees we have the phytoplankton and the snow-dumping in Antarctica. Brow-furrowing if not jaw-dropping stuff. These he acknowledges as fanciful, but he takes the occasion to reaffirm his confidence that, if economic growth is not suppressed, technologies will be found that will inoculate us against even the worst-case scenarios. He seems to take more seriously the possibilities of carbon-eating trees. Perhaps this idea is technologically less fanciful than the others, but is it not also fraught with unknowns?

Leaving aside the logistical challenge (possibly more formidable than the technological) of replanting as much as a quarter of the world's forests, can we really know enough about the consequences to embark upon such a course, or to be so confident this early in the game? I am not phobic about genetically modified organisms, but this sounds like a much bigger deal than

designer tomatoes, or laboratory cultures for the production of medicine. I admire Prof. Dyson's audacity, to use a word that has recently been given new life, but think we need to attend more to the unforeseeable risks of technological solutions. (As Bob Dylan observes in a song, "You always got to be prepared, but you never know for what.")

Professor Nordhaus's proposal to pay the costs of our carbon production puts the incentive properly at the source of the problem, but I doubt that this is enough. Necessary but not sufficient. An initial increase in the electric bill for the average American family of \$90 per year, and increases in the costs of virtually all consumer goods, to the extent that they will cost more to produce and transport, would be felt but not onerous, and would exert leverage in the right direction. (Such an increase, of 7.5%-12.5%, from a carbon tax of \$30-\$50 per ton, would be more influential on the corporate and institutional levels, where people are paid to watch the numbers.) But besides this economic nudge, we may need some direct constraints, for it is also consumer lifestyle that drives economic decisions. Most people "comfortable" in their living standards will shrug and pay, moderate their consumption little, and soon get accustomed to the increases. So will many who are less well-off. We are creatures of habit, not always good even to ourselves, and the classical economist's expectations of rational, self-interested behavior are often confounded. We are slow to adopt new ways even when the evidence is abundant that we ought to.

Nordhaus seems right to identify the discount rate as crucial. The math in his discussion is not so challenging but the methodology, as summarized, is not too clear in every respect. Probably his book goes into more detail, but (for those of us who have not troubled to buy and read his book) I wish Dyson had passed on more about just how DICE defines and calculates future losses from environmental damage. Nordhaus mentions both market and non-market impacts. Hard enough to estimate future economic impacts in, say, food production, or health costs, but possible – at least we are in the realm of the concrete and can apply a value in dollars. But what about non-market – the things we say are priceless?

Much of what we think of as the quality of life is literally invaluable in dollar terms. How can we estimate the dollar value of the loss of a relatively unspoiled landscape, or breathable air – quite apart from the purely economic impacts of reduced recreational activity or higher incidence of respiratory disease? Unless such incalculables are somehow fairly, even if arbitrarily, accounted for, an important factor is missing from the model, or underestimated, and Nordhaus's attempt to find a proper balance between the demands of sustaining economic growth and avoiding environmental damage would tend to err on the side of economic development at the expense of environmental protection.

Of the aim of sharing the burden equitably among present and future generations, Nordhaus says that to impose too heavy a carbon tax now would be unfair to the present generation, because it would oblige us to restrain drastically our present level of activity. A firm brake on carbon output would only depress economic growth and, for all our present sacrifices, consign our descendants in perpetuity to a reduced standard of living – unfair to the future as well. A bad bargain, seen that way. For him the Stern proposals are draconian and economically counterproductive.

He may be largely right, but cites, without disputing, the Stern projection that "global per-capita real income will rise from \$10,000 today to around \$130,000 in two centuries", thus summarizing the Stern viewpoint that we needn't worry too much about our descendants' well-being and can charge a stiff carbon tax now. But what the world will be like in 200 years, with that kind of real income? If this corresponds to economic activity, it will be unsustainable to the environment, unless most or all of the increase is carbon-neutral. Will we have ever more

things to spend our money on, or will we spend more on intangibles like education and virtually miraculous health care? Will the earth be covered with civilization, however green we can make it? Remember that before green politics and green technology, there was – simply – green. Will we still have that? It would be pretty to think so.

We seem unable to evolve beyond the notion that the economy can and must grow infinitely. We hesitate to restrain growth, yet our prosperity, besides being inequally distributed, is manifested in a largely vacuous and short-sighted material culture. We fall far short of the potential one could expect from such prosperity. We overlook important priorities, issues of the quality of life which may not depend on mere wealth.

In this attempt to establish priorities fair to all, rich and poor, living and yet unborn, we of the developed world should bear a burden out of proportion to our numbers but more in proportion with our environmental footprint. It is only fair to cut a little slack where the developing world is concerned. This is where Prof. Nordhaus's concern for sustaining development is most valid, and just; less so in the developed world, where most of us are rather spoiled, and can better afford the greater sacrifices.

Even if the worst consequences of GW and other abuses have yet to occur, much environmental damage has already been done. The past century or two have proceeded with little attention to just *how* we grow, to the kind of civilization we have been building. But now that we are aware of the dangers, there is nothing for it but to try to pay the price not paid by our antecedents (after all, we have been enjoying the prosperity they passed down to us), just as one can not ignore forever an unpaid debt, or a threatening disease that one has carried asymptotically for years.

Allen Schill
Torino, Italy
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N.Y.Review: "Global Warming", by Freeman Dyson:
<http://www.nybooks.com/articles/21494>

N.Y.Review: "Our Biotech Future", by Freeman Dyson:
<http://www.nybooks.com/articles/20370>

Let's not overlook the rhinoceros in the living room of our national priorities: the defense establishment, an albatross around the neck of our ability to allocate limited resources of nectar and honeybees (capital and labor) to create a better society. It is well-known that petroleum products and energy cost considerably more here in Europe (gasoline in Italy is about three times the U.S. price), mainly due to taxes, yet this doesn't appear to suppress the economy. Tax rates generally are higher, and costs for many consumer goods are a little higher, but the living standards are comparable to those in the U.S., and we in Europe have universal health care, more government services, and a greater social equality (even in a shameless plutocracy like Berlusconi's Italy). Besides being addicted to energy, we in the U.S. are addicted to an economy heavily oriented towards defense expenditures. Must this be the price of empire?

On this theme of addiction to a war economy, it might be instructive to look back at *The Report From Iron Mountain*, the 1967 book that purported to be the secret study, leaked, of a U.S. government panel of the grave dangers that would face society should peace ever break

out. (These were, mainly, serious recession without the economic boost of defense production, the loss of cohesiveness and nationalist focus without an enemy to fight, the lack of an outlet for aggression, and – worst of all – the destabilization of the government.) The “study”, which seemed at times like a subject of George Orwell but developed by Jonathan Swift, recommended schemes such as massive public-works projects (think of the pyramids of Egypt), blood games, the reintroduction of slavery, and the invention of public menaces like aliens or toxic scares.

Although apparently a hoax (some dispute this), and however outrageous many of the proposals, it was at least plausible enough to make a good joke great, and stepped on toes sore enough to enrage President Johnson, who ordered it suppressed. (I got it from my local public library in 1968 or so when I was seventeen. I shudder to think, after all the pseudo-patriotic paranoia of the George W. Bush administration and its mania for surveillance and control, what we would not be able to read if such censorship were possible.) Here’s a link to the Wiki article:

http://en.wikipedia.org/wiki/The_Report_from_Iron_Mountain

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