

ENVIRONMENT

ENVIRONMENT/CLIMATE ■ 28:3/101 (AB)

The Weather Makers: The History and Future Impact of Climate Change. Tim Flannery (Director, South Australian Museum; Professor, U of Adelaide). NY: Atlantic Monthly Press, March 2006/357p/\$25.

Many people have reacted with rightful caution to news about climate change. After all, we have in the past got things badly wrong (e.g., the 1972 *Limits to Growth* report that the world was running out of resources). But the climate issue is different. It results from air pollution, and the volume of pollutants that we are pouring into the atmosphere is known with great precision. The debate now concerns the impacts of some of these pollutants on all life on Earth. *"One of the biggest obstacles to making a start on climate change is that it has become a cliché before it has even been understood. What we need now is good information and careful thinking, because in the years to come this issue will dwarf all the others combined. It will become the only issue."*

Flannery, a leading Australian scientist, describes "the great aerial ocean" of the atmosphere, the 30 or so greenhouse gases in the atmosphere, ten millennia of climatic see-saws, the "long summer" of the last 8,000 years (without doubt the crucial event in human history), the effects of burning fossil fuels, relocations of species, peril at the poles (e.g., the sharp decline of Antarctic krill since 1976, endangered species in the Arctic), decline of the world's coral reefs (their future under the emerging new climate is bleak), disappearance of amphibians (as of 2004, nearly a third of the world's 6,000-odd species was threatened with extinction), changes in rainfall (noting droughts in Australia, the US southwest, and Africa's Sahel region), the warming of the troposphere leading to more frequent hurricanes, potential sea level rise if the West Antarctic ice sheet detaches from the sea floor (some scientists predict a rise of 3-6 meters over a century or two), global temperature rise (*"whether we allow it to rise by a single degree, or 3°C, will decide the fate of hundreds of thousands of species, and most probably billions of people"*).

Also includes a scenario of Gulf Stream collapse due to added fresh water from melting ice in the North Atlantic, a scenario of collapse of the Amazon rainforests (large areas could turn into a barren desert by 2100), a scenario of "colossal" amounts of methane released from the sea floor (triggered by a massive warming event), the "inevitable" collapse of civilization if business-as-usual continues to 2050 (we could face either an eternal dreary winter or extreme heat, "brought on by a vast exhalation of CO₂ or methane"), problems with the Kyoto Protocol, insurance losses rising at about 10%/year (Munich Re estimates that "by 2050 the global damage bill from climate change could top \$500 billion"), the virulent opposition to reducing emissions of greenhouse gases (many groups discussed, as well as the Bush administration), proposed engineering solutions (implementation on a sufficient scale "will surely not arrive before 2050"), the transition from oil to gas, problems of hydrogen fuel cells (see 28:3/125), expansion of nuclear power (any major growth will depend on the viability of new, safer reactor types—see 28:3/123-124), and "the enormous potential" of geothermal power.

Concludes with "three possible outcomes:" 1) *Protracted Dark Ages*: response to limiting emissions is too slow to avert great climate shifts, which destroy Earth's life support systems and destabilize our global civilization; these changes could begin as soon as 2050; 2) *Humanity Acts Promptly*: actions on individual, national, and corporate levels reduce emissions and thus avoids serious climatic consequences, with substantially decarbonized transport systems by 2050; 3) *World Climate on a Knife Edge*: emissions reduced enough to avoid outright disaster, but serious damage to ecosystems still results; humans have no choice but to establish an Earth Commission on Thermostatic Control (something that could easily grow from the Kyoto Protocol). The Commission would use the oceans as a tool to regulate the Earth's thermostat, and would establish far-reaching regulations dealing with agriculture, forestry, and other land uses. It may also arbitrate in cases where one nation suffers gross disadvantage due to changed climate, while others prosper (e.g., Australia may be on the brink of collapse, while Canada may enjoy bonanza harvests and mild winters). One can expect foot-dragging and deceit, as well as outright refusal to comply with "the carbon dictatorship" that may be essential for our survival. [NOTE: Well-informed and clearly written. ALSO SEE *Global Warming: The Complete Briefing* by Sir John Houghton (Cambridge U Press, Aug 2004/351p; FS 26:10/467) for a semi-popularized spin-off of the three IPCC reports.] (Earth Commission on Thermostatic Control ahead?)

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Field Notes from a Catastrophe: Man, Nature, and Climate Change. Elizabeth Kolbert (Williamstown MA; staff writer, *The New Yorker*). NY: Bloomsbury, March 2006/210p/\$22.95.

"Computer models of the earth's climate suggest that a critical threshold is approaching. Crossing over it will be easy, crossing back quite likely impossible." Based on three articles published in *The New Yorker* in Spring 2005, "this is a book about watching the world change," seeking to convey, as vividly as possible, the reality of global warming. Chapters describe the Alaskan village of Shishmaref and the retreat of sea ice, the melting of the permafrost in Alaska (leading to the "drunken" forest of spruce trees listing at odd angles), the potential release of CO₂ from the warmed permafrost, early thinking about climate change in the 19th century, the disintegrating Greenland ice sheet, potential extinctions of butterflies and toads, climate models, floating houses being built in The Netherlands (each is moored to a metal pole and sits on a set of hollow concrete pontoons that will bob up and down as flood waters rise and recede), the business-as-usual projection of carbon emissions (to grow from 7 billion metric tons in 2005 to 10.5 billion tons by 2029 and 14 billion tons by 2054), the potential of space-based solar power, an interview with the Undersecretary of State who assures that the Bush administration takes the issue of climate change "very seriously," the US and the Kyoto Protocol, and the growing intensity of hurricanes.

Ice core records show that we are steadily drawing closer to the temperature peaks of the last interglacial, when sea levels were some 15 feet higher than they are today. *"It may seem impossible to imagine that a technologically advanced society could choose, in essence, to destroy itself, but that is what we are now in the process of doing."* [NOTE: The "field notes"

are intriguing and cutting edge, but disconnected. ALSO SEE an update by Kolbert (*New Yorker*, 20 March 2006, 67-68) reporting 2005 was the hottest year on record and that Antarctica is losing ice at a rate of 36 cubic miles per year; if continued, it means that "predictions for the rise in the sea level for the coming century are seriously understated." *Time* magazine (27 Feb 2006, 58-59), reports Greenland losing its ice at twice the rate of a decade ago, which was not anticipated by any climate model.] (climate change catastrophe ahead?)

ENVIRONMENT/CLIMATE 28:3/103 (AB)

The Science and Politics of Global Climate Change: A Guide to the Debate. Andrew E. Dessler (Assoc Prof of Atmospheric Sciences, Texas A&M) and Edward A. Parson (Prof of Law and Natural Resources, U of Michigan). NY: Cambridge U Press, Feb 2006/190p/\$80;\$34.99pb.

Because of the severity of harms it might bring, global climate change is the most serious of all the environmental issues of the past few decades—and the most difficult to manage. The Kyoto Protocol, the first international treaty to limit human contributions to climate change, entered into force in Feb 2005. It is a modest first step toward a concrete response, but "there has been essentially no progress in negotiating the larger, longer-term changes that will be required to slow, stop, or reverse any human-induced climate changes that are occurring." At present, "the world is far away from having any mitigation regime that could make a serious contribution." A few countries are developing serious mitigation policies, but even these fall well short of what will be needed. "Most nations have policies vastly too weak for the job, or none at all."

The essential political problem of managing global climate change is to identify a series of achievable steps to move toward the goal of widespread adoption of serious, cost-effective, coordinated mitigation policies. An effective international strategy must be able to produce large-scale reduction in global emissions, and transformation of the world energy system, over the next several decades. And the strategy must be sufficiently equitable in its distribution of burdens to gather widespread support. "The present policy response is utterly inadequate in view of the gravity of the climate-change issue."

Chapters explain science, politics, science in politics, climate change uncertainties, future changes expected in 21C, the policy debate on impacts and what to do, balancing costs and benefits of mitigation and adaptation, geoengineering (such projects would take several decades to begin altering the climate and would pose serious legal and political problems; there is no basis to expect that such approaches will or should play any significant near-term role), present positions on Kyoto (the EU is making progress toward its promised 8% emissions reduction by 2012; US emissions are projected to increase 12% between 2002 and 2012), arguments against action (the Earth is not warming, human activities are not responsible, climate warming will be very small, mitigation is too costly), the counterarguments, and ill-informed attacks against the IPCC.

"Scientific knowledge about present and likely future climate change calls for an urgent, high-priority response." Proposals to escape the present deadlock fall into three broad categories: 1) keep all major elements of the Kyoto Protocol, but negotiate specific and relatively minor changes; 2) more

substantial revisions to the Protocol and the earlier Framework Convention on Climate Change that entered into force in 1994; 3) abandon universal participation through the Protocol and seek other vehicles for cooperation involving smaller groups of nations: a) negotiate a bilateral deal between the US and China to establish a firm baseline trajectory for each nation and a reliable system to account for emissions ("this approach holds more promise than the previous suggestions"); b) a serious mitigation strategy pursued by a small group of rich countries (this proposal has the greatest promise, building on existing political commitment). [NOTE: Excellent overview of an increasingly critical issue.] (Kyoto Protocol: change or abandon?)

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Climate Policy Options Post-2012: European Strategy, Technology and Adaptation After Kyoto. Edited by Bert Metz (Netherlands Environmental Assessment Agency) and Mike Hulme (Tyndall Centre for Climate Change Research, UK). London: Earthscan, Dec 2005/\$49.50pb (dist. in US by Stylus, Sterling VA).

A special edition of *Climate Policy* (Vol 5, 2005, 241-391), a leading journal of analysis and debate on responses to climate change, based on two workshops sponsored by the European Forum on Integrated Environmental Assessment. Some conclusions on a post-2012 climate change policy regime: 1) thinking about climate change must be expanded so that it is seen as more than simply an environmental issue; 2) there is a need to engage more sectors and the EU has the potential to act as a leader; 3) a diverse range of targets and commitments will be necessary both within the EU and globally; 4) diffusion of clean technologies must be accelerated; positive aspects of technological change should be emphasized; 5) critical areas for further research include costs of inaction and benefits of climate policy, costs for individual sectors, options for dealing with competitiveness problems, regional climate change impacts, and perceptions of climate impacts and policies; 6) there are important debates on timing, trajectories, and the role of trading; 7) a sustained dialogue between groups of policy-makers, social scientists, and climate scientists is needed.

Topics of the nine articles include long-term goals and post-2012 commitments, Europe's strategic choices (the EU must take clear principled positions and accept the principle of equal per-capita emissions entitlements as the long-term normative bedrock; both positions will alienate the US), international technology collaboration, a proposed 20-40% emissions reduction target for the EU in the 2000-2020 period, linkages between climate change and sustainable development, key ideas related to climate adaptation, and continuing Europe's leadership in climate policy.

[ALSO SEE **Implementing the Climate Regime: International Compliance** edited by Olav Schram Stokke *et al.* of Norway (Earthscan, March 2005/240p/\$99.95) on the Kyoto compliance system and challenges to its effective operation. Briefly discusses four major alternatives to the Kyoto system: 1) using intensity targets that focus on emissions per unit of GNP; 2) abandoning emission constraints in favor of focusing on technology development; 3) price caps for allocating emissions permits; 4) internationally coordinated taxes as an incentive to cut emissions.] (climate change policy post-2012)

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