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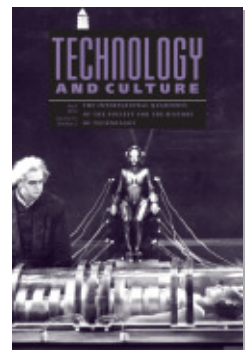
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Changing the Atmosphere: Expert Knowledge and Environmental Governance

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Scott and Helen Nearing, though the majority come from a great assortment of printed material. This book fits nicely into a growing historiography that connects agricultural and environmental history, and it will be read by all those with an interest in agrarian thought. It is an illuminating and useful volume, even though it does not go deeper than its sources into the social and political circumstances of permanent agriculture. Agrarian thought is intensely political, and Beeman and Pritchard do not address the political differences between the writers they feature and those with opposing views. What was the ecological society imagined by proponents of sustainable agriculture? Answering that question would have made the narrative look more like a contested enterprise than a steady progression. A sense of conflict is most apparent in the final chapter, "The Public Life of Sustainable Agriculture," something of a brief on the policies and missteps of the last thirty years. The authors include a skillful explanation of how sustainable agriculture has been co-opted by agrochemical companies.

A Green and Permanent Land begins with a regional crisis—the Dust Bowl—and ends with the global crisis. In between is a story of how a small number of soil scientists and agrarians imagined an agriculture that featured production without decline to set against the exhaustive tendencies of industrialism.

STEVEN STOLL

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Changing the Atmosphere: Expert Knowledge and Environmental Governance.

Edited by Clark A. Miller and Paul N. Edwards. Cambridge, Mass.: MIT Press, 2001. Pp. xii+385. \$26.95.

Changing the Atmosphere is essential reading for anyone interested in environmental issues, climate change and global warming in particular. Inspired by a science-studies approach, it treats scientific knowledge, and the people and institutions that produce it, not as value-neutral, consensually established inputs to policy debates, but rather as key components actually embedded in the formulation and legitimation of such debates and their outcomes. The essays offer "detailed, empirically grounded case studies of settings in which people make and interpret knowledge about the earth's climate and link that knowledge to political decisions" (p. 15). As such they are not merely intended as an "academic" exercise. They are fine examples of how intellectuals can be politically engaged without sacrificing analytical rigor, precision of language, or clarity of exposition.

An extremely well-crafted introduction by the editors situates the argument, summarizes the individual contributions, and shows how they are

interconnected. It is followed by nine chapters that introduce readers to the science and technology of weather prediction, locating these in the broader moral, institutional, and political context of environmental governance. The concept of climate has been profoundly modified over the past fifty years. In 1941 the U.S. Department of Agriculture asserted that “the climate of a place is merely a build-up of all the weather from day to day” (p. 7). This locally bound, additive concept has now been replaced by a global, systems concept. The need for expert knowledge has emerged along with the evolution of this “scientific” concept of climate. That knowledge, in turn, empowers “us” to intervene, and to manage the climate locally (hence the idea of climate management as a weapon during the cold war) and globally (from whence, more recently, the less bellicose aim of responsible environmental governance).

Technology has played a crucial role in this process. If it is possible to study climate change on a global level it is because we now have at our disposal a worldwide network of local data-collection points on land and sea (balloons, buoys, and the like), linked together in real time, along with satellite images from space. The masses of information that these provide would be useless without extremely high-powered computers that can be used both to interpret the data and to handle models that represent climate at a global level. As coeditor Paul N. Edwards stresses, these computer-based models make “inaccurate, incomplete, inconsistent, poorly calibrated, and temporarily brief data *function* as global by correcting, interpolating, completing and gridding them” (p. 62). They literally build empirically based images of the world. The complexity of the phenomena they are modeling, and the intrinsic limitations of the data and of the models themselves, mean, however, that their findings are necessarily contestable. One line of attack is simply to assert that since they produce uncertain knowledge they are not even scientific—a positivistic reproach vigorously rebutted by Stephen Norton and Frederick Suppe in their contribution to the book. More fundamentally, the inherent uncertainty in computer models of the climate leaves scope for differing interpretations of the findings and for lively disputes among experts. This inevitable absence of scientific consensus opens a space for the politicization of the debate over the extent and causes of climate change, of global warming, and of environmental degradation.

Climate change is a global phenomenon with life-and-death implications for millions of people, notably in some of the poorest countries on the globe. Knowledge of how, and why, the climate is changing is, however, produced by a handful of people concentrated in a few centers in the rich, industrialized world. The resources at their disposal, the questions they ask, the techniques and skills they deploy to answer them, the main causes of weather-change that they identify, their related policy proposals—all are the prerogative of privilege. Frequently their “universalistic” science is accused of serving the particularistic interests and political agenda of the

rich at the expense of the poor. It is encouraging to learn that some of the organizations engaged in the process of widening the debate on climate change, as described in this book, are making an all-out effort to institutionalize mechanisms to expose bias and preconceptions that might systematically work against the disinherited and powerless.

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Those mechanisms aim to build trust and credibility in a system in which a select few coproduce scientific knowledge and political agendas that have profound implications for all. They are an important step along the path to building what Sheila Jasanoff calls an imagined global community concerned with environmental change. That said, after the earth-shattering events of September 11, which brutally emphasized how divided the world is, talk of global communities and global environmental governance seems utopian. One can only wonder how some of the contributors would have revised their arguments if they had written their essays after September 11 rather than before.

JOHN KRIGE

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Mao's War against Nature: Politics and the Environment in Revolutionary China.

By Judith Shapiro. Cambridge: Cambridge University Press, 2001.
Pp. xvii+287. £35/£12.95.

As was the custom during China's Great Proletarian Cultural Revolution, let us begin with a quotation from Chairman Mao: "To struggle against the heavens is endless joy, to struggle against the earth is endless joy, to struggle against people is endless joy." Written in his youth, these lines epitomize Mao Zedong's approach to governing and guiding China. On many occasions the result of this mentality was disaster for China's people and the land that sustained them.

Judith Shapiro's *Mao's War against Nature* is not an exhaustive documentation of environmental devastation during Mao's years in power (1949–76); rather, it focuses on particular cases that demonstrate how Maoist efforts at economic and social transformation produced widespread environmental wreckage. The cases presented include debacles like the construction of dams that soon silted up, failed efforts to reclaim farmland from lakes and wetlands, widespread deforestation, the annihilation of sparrows and a consequent surge in the insect population, the construction of a steel mill in a place manifestly unsuited for it, and a misguided attempt to plant rubber trees in a pristine rainforest.

All of these projects had a number of features in common. First, they