

## BOOK REVIEW

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*A Field on Fire: The Future of Environmental History*, Mark D. Hersey and Ted Steinberg, Eds., University of Alabama Press, 2019, 316 pp, ISBN 978-0-8173-2001-0 (cloth) or 978-0-8173-9208-6 (ebook), \$49.95.

This collection of essays describes a set of visions and directions for the field of environmental history influenced by one of its formative figures, Donald Worster. Many of the contributors are former colleagues or students of Worster, Professor Emeritus of history at the University of Kansas.

Before describing the book in some detail, I feel compelled to disclose that it contains fairly little overlap with the subject matter in history of chemistry—considerably less than I expected when I requested a copy of the book to review. That mismatch says more about me than about the book, though. As a chemist interested in the history of environmental topics such as atmospheric chemistry and leaded gasoline, my exposure to environmental history was to a part of that discipline's literature that *does* overlap history of chemistry substantially. After reading the volume, I compare myself to one of the proverbial blind men trying to form a picture of an elephant from feeling just its trunk. The book suggested to me many possibilities for combining disciplinary lenses and categories of analysis in constructing narratives of human activities over time.

The book's 17 essays are organized under three broader sections, each alluding to a title of an essay or talk of Worster's: "Facing Limits," "World without Borders," and "Doing Environmental History." The introduction to the entire volume is also an introduction to Worster and his vision of environmental history. In that introduction, Mark Hersey notes that even as historians broadened their focus from ruling elites and political history over

the course of the 20<sup>th</sup> century, they still neglected nature "as an agent and presence" in human affairs. Of course, not only does nature affect people, people affect nature and are indeed a part of nature. Worster's methodology for environmental history called for analysis on a material level that accounts for relevant ecosystems, a political and economic level that describes political and economic forces that motivate human interactions with the ecosystems under study, and an intellectual level that explores how the relevant human cultures thought about those ecosystems. Worster was influential, but toward the end of the 20<sup>th</sup> century, many environmental historians took an approach that was less materialist than his and that emphasized the cultural construction of nature more.

Two essays in the first section caught my attention as particularly relevant to history of chemistry. Kevin Armitage discusses the unintended environmental consequences of the inventions of Thomas Midgley Jr., in particular of leaded gasoline and chlorofluorocarbon refrigerants. He argues that technological "lock-in" was at least a contributing factor in the development of these modifications to the existing technologies of automobiles powered by internal combustion engines and refrigerators based on the evaporation and condensation of working fluids. This essay left me interested in the role that lock-in (the tendency to attempt to improve existing technologies rather than invent completely new ones) plays in all sorts of systems, from the siting of cities to the dimensions of vehicles. But it left me skeptical that lock-in was a significant contributor to the unexpected environmental harm of these particular inventions. To be sure, the plan of the book for relatively brief essays ensures that none could be comprehensive, their arguments no more than suggestive.

Brian Black's essay "Energizing Environmental History" points to the production and distribution of energy as a fruitful area for environmental history. He notes that studies of energy have been undertaken by economic historians and historians of science and technology. Highly visible current and recent incidents of environmental impacts from energy production, such as the 2010 BP-Macondo oil spill in the Gulf of Mexico, with its dramatic video images of spewing petroleum, will ensure the continued relevance of environmental histories of energy to contemporary readers.

Readers interested in science and technology will also find some in the third essay, "Seeing Like a God." Here Frank Zelko worries that recent ideas in earth and environmental sciences could unintentionally promote a Promethean attitude in environmental management. Ecologists have moved away from "balance of nature" as a paradigm toward non-equilibrium views of ecosystems, and earth scientists have labeled the current geological epoch the Anthropocene. Zelko wonders, might the recognition that nature is always out of balance and that humans have already profoundly affected the planet promote excessive technological optimism and hubris?

The limits explored in the first set of essays, including the three already mentioned, are limits to economic growth that nature imposes. Ted Steinberg argues in the first essay that environmental history as practiced by Worster is a kind of radical history, underpinned by moral and political commitments. His moral commitments are to nature and against a capitalism that attempts to dominate nature and refuses to respect its limits. In the next essay, Adam Rome poses the question, "Can capitalism ever be green?" His conclusion, pace Worster, is "maybe," and he is keen to see businesses try. In the section's last essay, Christof Mauch uses Malibu, California, as a touchstone for reflections on human conceptions, perceptions, and illusions regarding nature. For example, to inhabit that particular landscape requires considerable effort to defend dwellings from natural disasters.

The second section, "World without Borders," has as a common theme transcending borders, whether national or disciplinary. The essay in this section that abuts science most closely is Robert Wellman Campbell's essay, "Down in the Sky: The Promise of Aerial Environmental History." It is largely an exercise in description from an unusual perspective, namely that human beings are "creatures of the sky." However much we might think of the sky as extending above us, perhaps bordering the ground at a distant "skyline" on the horizon, the interface between the sky and the ground extends to the surface

at our feet. Human beings live at the interface of the sky and the ground; although we live *on* the latter, we live *in* the former. After physically locating humans in the air, Campbell asks the reader to consider "human aeriality on the biological level"—which is actually at least partially a chemical level. We require oxygen to survive. We are made mainly from elements that come from the sky, hydrogen, oxygen, and carbon. Our bodies are largely water, and since we require fresh water, that is water from the sky rather than water from the oceans; and the carbon in our bodies came from atmospheric carbon dioxide via photosynthesis—although Campbell concedes that humans do not do the photosynthesizing. Having established humans as aerial creatures, Campbell invites historians to explore the many cultural connections of human beings to the sky, such as winged cultural symbols, aviation in warfare, and a migration of Americans over time to higher-altitude settlements.

In the section's first essay, Sterling Evans uses the abaca trade to connect the Philippines to Spanish America in an example of a transnational environmental history. Abaca is a plant cultivated in the Philippines whose fibers make excellent sails and rope. These properties made it highly valuable to maritime empires such as that of Spain in the 16<sup>th</sup> and subsequent centuries. Environmental history that transcends the nation-state was a direction Worster had predicted and encouraged for the field. The section's second essay, by Mikko Saikku, sketches a comparative study of ideas of hunting and wilderness in North America (particularly the United States) and Nordic Europe (particularly Finland). Next Shen Hou argues that studies comparing experiences of different nations can be particularly insightful if scholars select wisely the places and periods to be compared. They need not be close to each other either spatially or temporally: for example, she finds much worth comparing between ancient China and the modern United States. Marco Armiero takes crossing borders literally in his essay, focused on migrants in environmental history. The biota that Europeans brought with them to the Americas wrought havoc on those lands' previous inhabitants, as is now well understood. Less dramatic are some of the cultural practices around domestic animals and plants brought by later migrants, sometimes to the disapproval of their longer-established neighbors. Armiero also points out that environmental and occupational hazards often disproportionately affect vulnerable migrant communities. In the section's last essay, Karl Boyd Brooks points to the intersection of environment and the law, chiefly in environmental regulation, as an area ripe for exploration by environmental and legal historians.

Edmund Russell's essay is the one from the book's final section that is most related to science and its history. Indeed, its title, "Low-Hanging Fruit: Science and Environmental History," suggests that environmental historians would do well to develop familiarity with a scientific discipline much as historians value facility with another language as a scholarly asset. Ecology is the scientific field with which environmental history is most closely associated, but viewing the interactions of humans and nature from the perspectives of astronomy, chemistry, geology, meteorology, microbiology, neuroscience, physics, or statistics could provide interesting insights.

The title of the first essay of the final section, "*Whole Earth* without Borders," could well have placed it in the previous section. Neil Maher's emphasis, though, is not so much on the iconic photograph known as *Whole Earth* (Figure 1) as on using photos and other elements of visual culture in environmental history. He demonstrates rather convincingly that *Whole Earth* did not play a pivotal role in the launching of the environmental movement in the United States, as has sometimes been claimed. He argues (less convincingly, in my opinion, but at least plausibly within the length constraints of the essay), that displays of data plotted over a significant fraction of the earth led to the environmental movement's embrace of *Whole Earth* as an icon around 1990.



**Figure 1.** Whole Earth image taken during Apollo 17 mission, 1972.

Sara Gregg explores possibilities of using Geographical Information Systems (GIS) and other tools from the "spatial humanities" in history. Such systems can be used for analysis as well as visualization of conclusions.

The book's last two essays explore suggestions on combining environmental history with military his-

tory—beyond the obvious effects of terrain and weather on individual battles and campaigns and the ravages of war on natural and built environments. Brian Allen Drake takes the American Civil War as an example. Some recent studies have asked about the role of weather in the food shortages suffered by the Confederacy and the Union's superiority in food production during the conflict; about the role of disease in the execution of some campaigns and possible delay or prevention of others; about the effect of sectional differences in land use policies on sectionally divergent attitudes and policies around slavery in the decades before the war. Lisa Brady notes that an attempt to "understand war in its totality" will sometimes find surprising environmental effects in war and its aftermath. The trench warfare of the first World War provided opportunities for lice and disease microorganisms to reduce the fighting fitness of the humans who made the trenches in the first place. Less odious organisms, such as field poppies, also colonized areas whose soils were disrupted by the fighting. Half a world away, the Korean War has given rise to a long, narrow nature preserve in the peninsula's demilitarized zone.

Daniel Rodgers has the final say in an afterword, "The Distinctiveness of Environmental History." He identifies four aspects for emphasis, particularly in the brand of environmental history practiced and advocated by Worster. It comes to grips with ideas: those of science, myth, and various cultures about the natural world. It describes how power—in the form of social, economic, and political forces—affects the natural world. It reaches across vast scales of time and space. And it is a moral endeavor, infused by ethical seriousness.

I greatly enjoyed reading this collection of essays, and I appreciated how it broadened my horizons. The volume is in many ways like a meal of tapas—a great variety of small servings. Each essay provides many references to examples of the kinds of studies treated in the essay, giving the reader interested in a larger portion some clues on how to go about finding one. The variety of the book's essays leaves me impressed with the interdisciplinary possibilities of the field. I remain interested in the history of environmental science, but I now realize that that comprises only a small part of environmental history.

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