# Science & Technology

***MEASURING AMERICA: How an Untamed Wilderness Shaped the United States and Fulfilled the Promise of Democracy.***
By Andro Linklater. Walker. 288 pp. $26

When you buy a house in the United States, you cross paths with surveyors. Armed with legal documents and tape measures, they approach your property to verify its dimensions and boundaries, furnishing you with an official statement of its extent. It may be the house and garden that attracted you, but it's the ownership of a piece of land that's fundamental.

The measurement and legal apportionment of real estate may seem an unprepossessing subject, but in the hands of journalist Linklater, the surveyor's tale acquires a tinge of romance. In Europe, private property came into being by piecemeal amendment of ancient customs and by the gradual nibbling away of the presumed authority of monarchs. North America, by contrast, presented a vast tabula rasa waiting to be divided into neat geometrical portions—or so it seemed to the early colonists, the inhabitants they displaced having unaccountably managed to get by for generations without a clear sense of property.

Especially in nonconformist New England and Quaker Pennsylvania, the right of ordinary people to derive a living from land that was unequivocally theirs became crucial to the ethos of American society. The rectangular plots and city grids so characteristic of the United States, and so arresting even now to European visitors, sprang in large part from the sense of legal nicety and geometric orderliness prized by settlers in the northern colonies. Fanny Trollope, Anthony's mother, deplored the private ownership of land by common people as yet more evidence of the lamentable vulgarity of the Americans; the more astute Alexis de Tocqueville recognized that it fostered democratic spirit.

Linklater's account of the westward expansion of the United States emphasizes the physical act of measuring out the land. For him, the instrument of conquest was the 22-yard surveyor's chain, devised in 1607 by a little-known English mathematician named Edmund Gunter. This seemingly arbitrary length is four times a rod (or pole, or perch), a medieval linear measure derived from the amount of land a man could work in a day. Ten chains make a furlong, and 10 square chains are an acre, both units relating to the work done by a team of oxen pulling a plow. More subtly, Gunter subdivided his chain into 10 units of 10 links each and established arithmetical rules that helped harmonize the old agricultural units with the beginnings of a decimal system.

***Surveyors begin laying out Baltimore in the early 1700s.***

Linklater somewhat overpraises the sophistication of Gunter's chain—it is, in the end, a pretty odd standard of length—but he is right to observe how much it remains with us. Penn Square in Philadelphia is 10 chains on a side; the streets of Salt Lake City are two chains wide; across the country, city blocks and suburban plats hide neat multiples of the old feudal measure. The abrupt right-angled jogs encountered on otherwise straight midwestern roads are a consequence of trying to fit a plane grid onto a curved surface.

The core of Linklater's book is a compelling account of the surveying of the Ohio Territory in the years after independence. The distribution of this rich tract of land among pioneers offers a model for the physical, legal, and economic development of American society. A subtheme on the consistently thwarted attempts, beginning with Thomas Jefferson's, to introduce metric measurements to the United States distracts more than it illuminates, but Linklater has nevertheless produced a charming introduction to a subject one would hardly have imagined could be so engaging.

—David Lindley

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***SKEPTICAL ENVIRONMENTALISM: The Limits of Philosophy and Science.*** By Robert Kirkman. Indiana Univ. Press. 212 pp. $19.95

From Rachel Carson on, the Green movement has been heavy with facts, often alarmist ones. To underpin that empirical evidence, some environmentalists have sketched a general philosophical foundation: a large view of nature and our place in it. Bjørn Lomborg's best-selling *The Skeptical Environmentalist* (2001) challenged the empirical basis of Green ideology. Now Kirkman offers a critical account of the philosophical foundations of the ideology.

A professor of science and technology at Michigan State University, Kirkman begins with the idea of nature, which in Cartesian metaphysics is matter, brute stuff in space, the cosmos as vast machine. Against this view stand organicism and holism, which see the universe and the life within it as a unified whole. After discussing Hegel and Kant, Kirkman concludes that speculative philosophy is a poor guide for environmental thinking about nature. The meanings of *nature* are too varied and contradictory, and, adding to the ambiguity, *nature* and *environment* often are used interchangeably. Where some analysts might try to stipulate strict new meanings for these confusing terms, Kirkman, with commendable honesty, gives up on them altogether.

Kirkman is polite about every thinker he analyzes—too polite. He mentions, for example, the ecofeminists, who see the universe as a system of "weblike relations"—a feminine worldview, apparently—and find this idea useful in furthering both feminism and the Green cause. Kirkman doesn't explain why ecofeminism deserves even a mention. We may like both poetry and fine porcelain, but it does not follow that a plate with a poem on it is better than either alone. The same holds true of putting "eco-" in front of feminism, postcolonialism, Catholicism, socialism, or any other belief system.

Kirkman's bland agreeableness continues though chapters on environmentalism and value theory. Here he concludes that neither science nor philosophical speculation can give us a picture of the place of human beings in the universe, and hence neither can be used to establish value. Martin Heidegger makes an appearance, with his devotion to "dwelling poetically" on "the earth." No mention of his connections to the Nazis, who were pioneers in many eco-friendly policies, including smoke-free restaurants.

Toward the end of the book, Kirkman notes that the managers of Tsavo National Park in Kenya decided to stop culling and let nature take its course with elephant populations. This "natural" process made for a catastrophic increase in elephant numbers followed by large-scale starvation, with the landscape denuded of vegetation in the process. The Tsavo incident is not analyzed, but it serves as a reminder of how much more engaging the book might have been had it examined environmentalism in terms of the results of applying abstractions—for instance, definitions of "natural."

With its warnings of catastrophe and promises of salvation, Green thinking can resemble religion. Kirkman has made a start at debunking such pretensions, but a field so rife with moralizing nonsense needs a more robust