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in the Humanities & Social Sciences

Vaclav Smil. *Energy In World History (Essays in World History).* Boulder: Westview Press, 1994. $58.50 (cloth), ISBN 978-0-8133-1901-8; $43.00 (paper), ISBN 978-0-8133-1902-5.

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The energy crises of the 1970s made painfully evident the extent to which modern life is dependent on the use of vast amounts of energy. This perception has inspired a number of scholarly explorations of the energy-history nexus, of which Vaclav Smil's *Energy in World History* is one of the clearest and most comprehensive. Smil does not attempt to find rigid correlations between particular historical eras and patterns of energy use; to do so would be to invest energy use with a deterministic power that the author specifically rejects. Rather, *Energy in World History* describes a wide variety of energy sources and energy-using technologies in conjunction with descriptions of their interaction with broad historical changes. Individual chapters deal with energy in prehistory, traditional agriculture, preindustrial prime movers and fuels, and fossil- fueled civilization. These chapters are bracketed by introductory and concluding chapters that deal with matters that are less time-specific. Each chapter contains a multitude of tables, charts, and illustrations. These are some of the most valuable parts of the book; a reader could ignore the written text altogether and still learn much through an examination of the graphics. To take some examples chosen more-or-less at random, the reader can linger over such subjects as the growth in the size of oil tankers, the speed and power of different draft animals, the course of nitrogenous fertilizer production since 1920, chronological changes in energy intensity for selected countries, and the evolution of the moldboard plow. The book also contains a useful bibliography, a chronology of energy-related historical episodes, and a few pages that do an excellent job of sorting out the welter of measurements used to describe and analyze energy.

Although the book's greatest strength is the large store of information that it includes, there is a consistent effort to provide a context for it. Energy and energy-converting devices are juxtaposed with other crucial variables, such as population dynamics, urban growth, and food production. In the final chapter, Smil takes considerable pains to demonstrate that the type, source, and volume of energy explain history only in the broadest sense; energy determinism is as fallacious as all other deterministic schemes. This leads to a point not readily apparent in the previous chapters, that the amount of energy consumed is at best very loosely coupled with other quality-of-life indicators. As the author is careful to note, much depends on how energy is used. Yet at the same time there is no systematic discussion of energy conservation in this chapter or elsewhere in the book. This is a surprising omission, and is the book's only significant shortcoming.

The facts and perspectives contained in *Energy in World History* can all be found elsewhere, although some of them would require a rather determined research effort. Smil did not set out to write an "original" book; instead, he has produced a volume that makes a solid contribution to Westview Press's history series, which focuses on broad issues and major historical epochs. As a work of synthesis, *Energy in World History* succeeds admirably. In not much more than 250 pages it presents a wealth of factual material, all the time keeping the information in social and economic context. This is an invaluable book for anyone whose research or teaching requires solid facts and interpretations concerning the generation and consumption of energy. On several occasions in the course of my own research I have turned to this book for the information I was seeking, and I will certainly go back to it many times in the future.

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