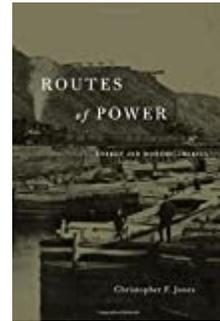




Christopher F. Jones. *Routes of Power: Energy and Modern America.* Cambridge: Harvard University Press, 2014. 320 pp. \$39.95 (cloth), ISBN 978-0-674-72889-9.



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Commissioned by Tammy Nemeth

Christopher F. Jones's *Routes of Power* is a thorough and insightful book. It urges readers to consider the implications of America's energy infrastructure's shift to fossil fuel energy. It explores the transition from an organic energy regime, where wood and animal energy were dominant fuel sources, to a mineral one, characterized by the use of fossil fuels.

Jones tracks this transition, which occurred between 1820 and 1930, outlining the rise of mineral energy, which was founded in the mid-Atlantic region of the United States; this focus defines his geographical and chronological scope. The transition to mineral energy sources, Jones argues, came about through the creation of landscapes of intensification, wherein transportation systems increased the social demand for mineral energy. And these developments in transportation were inextricably linked to environmental changes. Significantly, he asserts, "the roots of America's energy transitions can be found in the building of routes along which coal, oil, and electricity were shipped" (p. 2).

Routes of Power fills a niche in historiographical literature with its combined look at transportation and energy. William Cronon's study of commodity flows (*Nature's Metropolis: Chicago and the Great West* [1991]) and

Thomas Park Hughes's investigation of electricity networks (*Networks of Power: Electrification in Western Society, 1880-1930* [1983]) inspire Jones's work. In his analysis of the transition between these historical energy systems, he joins a number of scholars, including Martin V. Melosi (*Coping with Abundance: Energy and Environment in Industrial America* [1985]), David E. Nye (*Consuming Power: A Social History of American Energies* [1998]), and Vacil Smil (*Energy Transitions: History, Requirements, Prospects* [2010]). Yet his exploration of transportation as a major driver of this change is novel and deserves careful consideration by scholars.

Jones structures his book in six chapters, which proceed in chronological order, more or less, and cover the displacement of organic energy forms by the mineral energy regime throughout the nineteenth and early twentieth centuries. The chapters are also paired; the first two focus on coal, the next two on oil, and the last two on electricity.

The chapters on coal demonstrate the difficulty of transitioning to a new form of energy and the inevitable environmental changes that had to occur in order to create the infrastructure that would facilitate coal industry growth. Chapter 1, "Coal's Liquid Pathways," traces

the ways coal industry boosters pushed for changes to Pennsylvania's rivers and for the creation of canals to help move anthracite coal to East Coast cities. In the process, thousands of workers transformed local rivers into moving highways to transport coal. In the second and third decades of the nineteenth century, "transport changes," Jones writes, "drove the energy transition to anthracite" (p. 57). Chapter 2, "The Anthracite Energy Transition," demonstrates how demand for anthracite coal strengthened the mineral energy regime's hold on American society, at first in homes, and then in the development of steam-powered engines and other industries. With canals lowering their prices, boosters gradually convinced buyers in Philadelphia to convert their homes for coal use. And so, coal canals increased the use of coal and enabled the growth of cities and urban areas, creating new urban spaces and new forms of industry. By 1860, coal was entrenched in mid-Atlantic culture, economy, and society—a big step toward a full mineral energy overhaul.

Chapters 3 and 4 cover petroleum's early history and its absorption into the mid-Atlantic energy system. Much like coal, oil continued the transition to mineral energy. Kerosene provided a cheap and accessible source of light; petroleum-based lubricants improved machine functioning and speed; and when burned as a fuel, petroleum expedited the growth of manufacturing and revolutionized transportation technologies. These changes further transcribed the mineral energy regime all over the society, economy, and landscape of the mid-Atlantic. Chapter 3, "Pennsylvania's Petroleum Boom," shows how the early history of petroleum, as transported by railroad tank cars, facilitated environmental and social inequity. Edwin Drake's 1859 discovery of petroleum turned rural Pennsylvania into an industrial center for oil extraction. The landscape became littered with oil derricks as many people joined the rush to produce oil, and real estate speculation sent land prices soaring. Though getting oil out of the ground was relatively easy, transportation presented a number of problems. At first, local oilmen built railroad connections to attach to lines built by bigger companies. Later, railroad companies and pipelines funneled oil into some cities and not others. Standard Oil's control of the railroads created inequity between large and small producers. Chapter 4, "Pipelines and Power," analyzes the industry's transition to pipelines, further solidifying the region's dependence on mineral energy. Standard Oil took control of the pipeline industry as it had the railroad tank cars. "Pipelines were not simply a mechanism for moving oil;

they were an explicit attempt to transform who controlled the flows of petroleum and who would profit from them" (p. 124).

The last two chapters focus on electricity as the penultimate expression of the mineral energy system. Modern America takes its shape in electric wires. Chapter 5, "Taming the Susquehanna," analyzes the ways that the Susquehanna River's waters were tapped to create hydroelectric power, which was then inequitably distributed. The ecological changes brought about by hydroelectric power disrupted the lives of local residents, who, incidentally, often had trouble even accessing the full benefits of electricity. City dwellers had much better access to the new energy source. Chapter 6, "The Electrification of America," traces the spread of electricity and electric wires across the region—first in lighting and streetcars, and then in manufacturing and industry. Positioning electricity as the climactic moment of his study, Jones hints at its implications for the twentieth century. "Electricity," he writes, "also deepened the hold of the mineral energy regime by helping manufacture a whole host of goods that increased consumers' demands for mineral energy" (p. 218). Mid-twentieth-century mass-consumerism, it seems, has its roots in the inescapable grasp of mineral energy—made possible by the adaptable nature of electricity.

Jones's focus on the history of the mid-Atlantic region presents some limitations. The book speaks precisely and with detail on the technical and environmental challenges of these early energy industries. Some may wish to see a broader look at the cultural impacts of new energies. Others may fault it for its limited geographical range. Jones may have gained greater perspective on the depth of the entrenchment of these systems by looking to shipments of energy products beyond the mid-Atlantic. Some questions about the international influence of the development of these systems arise. How did development of transportation systems in the mid-Atlantic affect or direct development in other places—not only in the United States? At what pace did other places access these new sources of energy?

Regardless of questions one may be left with, Jones's pointed focus allows him to think deeply about his sources and the implications of his research. In his introduction and conclusion, he consciously points out what he sees as the consequences of his work for contemporary concerns about climate change. He offers three lessons. First, the creation of transportation infrastructure for renewable energy resources is crucial for the

successful adaptation of their use. Second, as with coal, oil, and electricity, supply needs to stimulate demand in order for renewables to be a potent and reliable energy source. Third, past energy transitions have wide-ranging social effects and are often characterized by inequitable distribution. A transition to renewables will need to take into account different cultures, societies, and a multitude of perspectives.

Such arguments infer a nod toward the developing scholarship on the Anthropocene. Though Jones hesitates to address the Anthropocene by name, *Routes of Power* can be classified within scholarship that addresses the topic. The book gives readers a detailed investigation of the inherent material and social processes involved in the industrial transition to fossil fuels—an event that is key to understanding human intervention in global climatic processes of the past 250 years. Even though the concept of the Anthropocene is as slippery and imprecise, as Finis Dunaway explains, it offers a way for historians to access long-term patterns of change that shape contemporary problems.[1] That Jones does not allow social divisions to blur in the face of systematic environmental

change is significant. Critics of the Anthropocene charge that the theory has the ability to smother social differences, which shape local, regional, and national energy and environmental histories. *Routes of Power* does not ignore the social costs of technological change. Instead, Jones demonstrates that in a true understanding of our contemporary climate crisis, history matters.

Routes of Power is an in-depth scholarly study of energy transportation systems and energy transitions. With such focused content, it is not the best candidate for an undergraduate or general readership. However, its specificity and timeliness make it a good candidate for graduate seminars, readers of energy history and the built environment, and scholars interested in the establishment of the industrial Anthropocene. Readers will enjoy Jones's careful attention to detail, his interweaving of narrative and argument, and his thoughtful conclusions and many insights.

Note

[1]. Finis Dunaway, "Writing History in the Anthropocene," *Raritan Quarterly* 35, no. 3 (Winter 2016), 30.

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