

Yet he also introduces the term to mean something broader than total war, namely that warfare with limiting rules of engagement still destroys environmental infrastructure that people need to rebuild after a conflict. Using it this way suggests something so broad that it is difficult to imagine any warfare that does not constitute what he describes as “a crime against humanity *and* nature.” To the extent that international law does not treat all warfare as criminal, environicide clearly needs boundaries.

But the problems highlighted above are minor in evaluating *Scorched Earth*. It is a remarkable work of scholarship that should make its way into every graduate course on the history of military conflict.

The book has enormous value in thinking critically about contemporary warfare. All United Nations member states are signatories to the Geneva Conventions, which are intended to protect civilians, other noncombatants, and prisoners of war. If followed, the conventions would ensure that signatory nations do not carpet bomb cities as the United States did in the Second World War, deploy the kind of chemical weapons used in the First World War, and summarily execute prisoners. Appealing to these conventions lets civilian and military leaders tell their citizens that they engage in limited war with minimal collateral damage. Kreike’s analysis should make us question the meaning of limited war which invariably causes direct human collateral damage and indirect human collateral damage caused by the destruction of environmental infrastructure. Indeed, *Scorched Earth* demonstrates that, however compelling just war theory might be in concept, fully just prosecution of war does not happen in practice.

The book also helps build the conceptual framework needed for Christian reflection on sustainability. Christian theologians and ethicists, particularly since Lynn White Jr.’s 1967 essay “The Historical Roots of Our Ecological Crisis,” have challenged dualistic thinking about humans and the nonhuman environment. Kreike’s descriptive analysis deepens our understanding of human embeddedness in the non-human creation, showing that Christian ethics itself should not be bifurcated in any simple sense between *social* ethics and *environmental* ethics.

#### Note

<sup>1</sup>C. S. Lewis, *The Abolition of Man* (New York: HarperCollins, 2001), 55.

*Reviewed by James R. Skillen, Associate Professor of Environmental Studies and Director, Calvin Ecosystem Preserve and Native Gardens, Calvin University, Grand Rapids, MI 49546.*



## HISTORY OF SCIENCE

**GEOGRAPHIES OF KNOWLEDGE: Science, Scale, and Spatiality in the Nineteenth Century** by Robert J. Mayhew and Charles W. J. Withers, eds. Baltimore, MD: Johns Hopkins University Press, 2020. 272 pages. Hardcover; \$54.95. ISBN: 9781421438542.

Around the 1970s, historians began embracing what came to be called the “constructionist” view of the development of scientific knowledge, which emphasized the particulars of local circumstances, people, and politics. On this view, scientific knowledge is thus constructed, not discovered. This process, moreover, is not the work of the individual genius but manifestly a communal and cooperative enterprise. The social construction of science thus denotes the view that scientific knowledge is not solely an autonomous, rational human production, but, rather, tangled directly to social interests and conditions. Influenced by the broader postmodern rejection of unmediated knowledge, the social constructivist relativization of scientific knowledge had direct implications for the way in which one defined the relationship between science and religion, in that it has forced scholars to stop privileging the scientific narratives of conflict with faith, and thus challenged prevailing grand narratives of scientific progress, most conspicuously promulgated by George Sarton, often considered the father of the discipline of the history of science.

Historian and sociologist of science Steven Shapin has been one of the leading practitioners of constructivist historiography. In now a celebrated article, Shapin argued that the early man of science “did not occupy a single distinct and coherent role in early modern culture.” Everywhere the social role of the man of science was heterogeneous, the pursuit of natural knowledge adventitiously attached in all sorts of ways to preexisting roles.

The notion that science and scientists are not isolated from their wider cultural context had enormous consequences. Critical theorists and sociologists of knowledge like Shapin offered a helpful corrective, revealing a kind of dialectic where science, literature, and culture are understood to borrow freely from each other. Focusing less on the structure than ethos of scientific communities in the early modern period, Shapin relativized and localized the central figures, themes, and institutions of the so-called scientific revolution. Shapin’s scholarship, and those who

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followed his lead, provide a useful background for the emergence of issues of the culture of knowledge in the nineteenth century. What is particularly unique about the nineteenth century is that direct access to knowledge, through popular, cheap, and readable texts, became a central factor in both the production of knowledge and the structuring of social order.

Shapin called historians of science to take up the task of providing a more “contextualized” historiography of the history of science. Since then, there has been much progress in putting science in its place. This “spatial turn,” if you will, in the history of science is paradigmatically reflected in the corpus of David N. Livingstone, which the current volume under review almost serves as a *Festschrift*. Early in his career Livingstone recognized that “science is not a disembodied entity; it is incarnated in human beings,” and that “science is not some eternal essence slowly taking form in history; rather it is a social practice earthed in concrete historical and geographical circumstances.” In his well-written small book, *Putting Science in Its Place: Geographies of Scientific Knowledge* (2003), Livingstone set out to evince scientific knowledge and practice as deeply embedded in specific times, places, and local cultures—science, in fact, is always “a view from somewhere.” Space matters, according to Livingstone. Space enables and constrains us; dictates what we can say and do; allows only a range of possible, permissible, and intelligible utterances and actions. This is Livingstone’s notable emphasis of “location and locution”: the positions we speak from are crucial to what can be spoken.

Scientific knowledge is thus not immune to the vicissitudes of culture. According to Livingstone, “What is known, how knowledge is obtained, and the ways warrant is secured are all intimately bound up with the venues of science.” Investigating the local, regional, and national features of science means that science is not to be thought of as some transcendent entity that bears no trace of the parochial or contingent. “We must work,” writes Livingstone, “with a less fixed conception of what science is.” What passes as science is contingent on time and place; it is persistently under negotiation. After all, science is a human enterprise: “it is not some preordained entity the fulfilling an a priori set of necessary and sufficient conditions for its existence; it is a human enterprise, situated in time and space.”

Science, then, is not just a collection of theories and universal truths but a concrete practice with spatial dimensions. It is, indeed, situated knowledge.

The editors of *Geographies of Knowledge* have gathered a collection of essays that build on themes in Livingstone’s impressive work. Structured in three parts, focusing on local, national, and global studies. Robert J. Mayhew and Yvonne Sherratt, for example, offer a “spatial hermeneutic” of Thomas Malthus’s *Essay on the Principle of Population*, arguing that it was a work grounded in “local knowledge,” with each edition revealing autobiographical particularities (p. 51). Diarmid A. Finnegan then revisits the place of Belfast in examining John Tyndall’s infamous “Belfast Address” of 1874. Although the address has attracted considerable scholarship, Finnegan insightfully brings out further nuance by emphasizing the “plurality of place,” exposing how religious and political changes in Belfast reflect the contrasting responses to his work (p. 79).

Turning to more national studies, American church historian Mark Noll examines Swiss defender of slavery Henry Hotze and how he used a rhetoric of conflict between science and religion to support scientific racism (p. 108). Veteran historian of science and religion Ronald Numbers reiterates his approach to the evolution debates in America, followed by yet another warning of the rise of global creationism (p. 132). Next comes Nicolaas Rupke’s “structuralist” method in analyzing the early “nationalization” of evolutionary theories, particularly in its Nazi appropriation (p. 150).

The concluding global section has an interesting piece by Charles Withers on the establishment of an internationally accepted Prime Meridian, in which he shows that the meetings of the International Geographical Congress “cannot be divorced from its wider intellectual and political context” (p. 178). This is followed by case studies on amateur naturalist and illustrator Charlotte Wheeler-Cuffe by Nuala Johnson, the situated nature of early climate science in the British Empire by Vinita Damodaran, and a study of failed British expeditions of West Africa by Dane Kennedy. An Afterword by John Agnew cogently summarizes the entire volume, illustrating in particular how Livingstone’s impressive scholarship reflects his own variegated background as an Irish Presbyterian, historical geographer of science extraordinaire!

*Reviewed by James C. Ungureanu, Upper School Humanities, Trinity Classical Academy, Valencia, CA 91355.*