



David N. Livingstone. *Putting Science in its Place: Geographies of Scientific Knowledge.* Chicago: University of Chicago Press, 2003. xii + 234 pp. \$27.50 (cloth), ISBN 978-0-226-48722-9.

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The Geographies of Nowhere and Everywhere

This is a book about the situated—and particularly spatially situated—nature of science. It pulls on a wide range of evidence to support its contention that to understand scientific endeavor we should attend closely to the various spaces in which it was and is conducted. In short, Livingstone argues that “geography matters in scientific inquiry” (p. 16). That the author of this volume is a geographer should not then be a great surprise. To others though, it is perhaps odd to find a geographer engaging in matters traditionally the preserve of historians, philosophers, or sociologists. Surely geographers are preoccupied with the production of maps, the measurement of rivers or glaciers, the charting of disease vectors, or patterns of agriculture? What do geographers have to say about the history and philosophy of science?

I mention this disciplinary prejudice because it illustrates the central point of Livingstone’s book. Common modern preconceptions of the geographical discipline are very much the product of what Livingstone has elsewhere termed a “contested enterprise”; in other words the outcome of a wide variety of practices in different times and places where its fortunes and reputation have waxed and waned.[1] Geography was highly regarded by the likes of Immanuel Kant and Alexander von Humboldt and central to their philosophical concerns. It has played leading roles in scientific inquiry across medieval Asia, the Islamic world, in Renaissance and early modern Europe and America. It has aided the expansion of commerce, territories, and empires. Scientific societies have been formed to encourage its pursuit. It has been

a cornerstone of educational programs. However, it has also been marginalized from university curricula, most notably from the vast majority of America’s Ivy League universities in the 1950s. In British secondary education, Geography is now no longer a compulsory subject that students are required to follow up to their GCSE examinations, something inconceivable one hundred years ago when it was seen as central to the production of British imperial citizens. Geography then is an intellectual pursuit that is historically and geographically situated, understood differently according to its place and time. This is the argument that Livingstone applies to science more generally, the geographical discipline included.

Livingstone conducts his analysis through three key geographies: sites, regions, and circulations, with a chapter devoted to each. The first substantive chapter, on sites, concentrates on the venues where science was produced and consumed, asserting that “in important ways, scientific knowledge is always a product of specific spaces” and that “to claim otherwise is to displace science from the culture of which it is so profoundly a part” (p. 86). This then is a rebuttal of the idea that science is something disembodied and universal, a thing that floats free of culture and politics. Livingstone follows science as it was made, negotiated, received and reconceived in a range of sites, including the laboratory, the museum, the field, the garden, and the hospital. He also considers the coffee shop, the public house, the ship, even the body itself. All of these spaces, Livingstone shows, have long and complicated histories that in turn affected how

science was done there.

Livingstone's chapter on the region expands the scale of his inquiry, from the micro-geographies of science to its performance at the level of the city, the county, province or state, to its effects on the nation, even the continent. Science "has persistently exhibited distinctly regional features" he claims, affecting the way it has been practiced and how it has been received (p. 134). It has also helped fashion regional and national identities. To demonstrate this Livingstone considers and unpacks the Scientific Revolution in early modern Europe and positions it as a set of, albeit overlapping, geographies, each a product of a heady blend of politics, religion, social norms, and cultural tradition. He looks at the urban geographies of science and the ways cities even in one country could practice and position science very differently. He examines what James Secord has termed the "geographies of reading"; that is, the way in which the "consumption of science—the ways scientific theories and practices have been received in different areas—also bears the marks of local circumstances" (p. 112).[2] Livingstone has contributed greatly to this in his own work on the development and spread of Darwinism, and pulls on that extensively to make his point here.[3] Lastly he considers the role of science in state craft—the importance of national laboratories of science, of national surveys and national surveying organizations, and of key scientific practitioners in the shaping of economic and political schemes.

The last section focuses less on locatable places and more on the ways in which science has moved around the world, assuredly an important topic given science's seeming ubiquity. Here Livingstone engages with the reasons for science's success. Rather than simply accept that science is the same everywhere he suggests that it is built from an array of local sites that work hard to conduct their investigations in accepted ways; that employ carefully calibrated instruments and regularized practices; that manage the transfer of information from one site to another; that try and replicate the work of others elsewhere: "What looks like the universalism of science—its seemingly problem-free transferability from one arena to another—turns out to have much to do with the replicating, standardizing, or customizing of local procedure" (p. 142). Livingstone looks at the management of traveling knowledge—the ways in which travelers were trained to be observers of natural phenomena, from Robert Boyle's seventeenth century guide *General Heads for the Natural History of a Country, Great or Small* to the Royal Geographical Society's 1854 *Hints to Trav-*

ellers. Maps are, perhaps unsurprisingly, discussed at length—important prerequisites and significant outcomes of voyages of discovery. Maps were not only significant in the movement of people and things from one place to another; they also expressed scientific ideas. Just a few of the many examples Livingstone cites are Alfred Wallace's map of the faunal and racial boundaries of the Malay Archipelago, Roderick Murchison's map of the Silurian strata, and Humboldt's delineation of the tropics using isolines—maps plotting points of equal value, like our weather maps. It is perhaps worth noting here that I found the wide range of situations presented by Livingstone throughout the book simultaneously entertaining and frustrating. Most often I enjoyed the ways different examples were employed and presented together; occasionally though I'd have liked a slightly longer examination of a particular instance so as to tease out its story more effectively (but perhaps that's not really the purpose of this book—see below).

Livingstone's three geographies of science are, he himself admits, far from exhaustive. There are plenty of other fruitful ways of thinking geographically about science and its history and the conclusion to this concise volume encourages us, in deliberately spatial terms, to "continue to map the terrain" (p. 186). To aid us, Livingstone provides an extensive bibliographical essay. This is especially useful because the body of the text is devoid of references. That this is the case gives us some indication of the intended audience. *Putting Science in its Place* is the second volume in the University of Chicago Press's science*culture series. The first was Steven Shapin's *The Scientific Revolution*, published in 1996. This was also a relatively short book—about 60,000 words, like Livingstone's—that avoided burdening the text with references. Both these books are, then, obviously aimed at an audience that wants to learn more about the histories and geographies of science from leading experts in their field but is perhaps less concerned with knowing who provided the scholarship on which the books' evidence are based. This approach will also suit undergraduate students who are trying to gain a good general knowledge of a period or process but don't have the inclination to follow up every claim made in the text. Whether Livingstone's book will be of value to academics is perhaps more debatable. *Putting Science in its Place* is based exclusively on secondary source material and so provides no new empirical insights, although it does present familiar studies in a new light. For many historians and geographers I suspect this book will simply confirm already held beliefs and will therefore serve

as a useful summary of an already extensive body of literature on the historical geographies of science. That said, it would be great to think that scientists themselves might pick up this highly readable, well written, copiously illustrated and enjoyable book and so reflect on the spaces and places of their own work.

Notes

[1]. David N. Livingstone, *The Geographical Tradition: Episodes in the History of a Contested Enterprise* (Oxford:

Blackwell, 1992).

[2]. James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of "Vestiges of the Natural History of Creation"* (Chicago: University of Chicago Press, 2000).

[3]. See for instance his chapter in Ronald Numbers and John Stenhouse, eds., *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender* (New York: Cambridge University Press, 1999).

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