

Statistics Do Sweat: Situated Messiness And Spatial Science

Michiel van Meeteren (m.van-meeteren@lboro.ac.uk)

Geography and Environment, School of Social Sciences and Humanities.
Loughborough University

Abstract

David Livingstone's *The Geographical Tradition* remains a landmark in geographic historiography. This commentary argues that Livingstone contravened his own methodology when discussing geography's spatial science era. After situating the book in its own spatiotemporal context, I suggest elements that could enrich a contemporary account of the spatial science era sensitive to Livingstone's methodological approach.

Keywords: Spatial Science, Quantitative Revolution, Positivism, Presentism, Internalism.

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Michiel van Meeteren

The Geographical Tradition set a gold standard for historiographies of geography. The book's situated messiness approach (Livingstone 1992 28-31) emphasizes the role of spatiotemporal context when understanding changing geographical praxis. Situated messiness encompasses two methodological rules. First, geographical historiography has to be reflexive about unavoidable presentism, or the tendency to refract historical narratives through the issues of the present (Livingstone 1992 4-9). Second, historiography has to avoid internalism: writing the history of geography in a navel-gazing manner disconnected from the wider social context (Livingstone 1992 9-11).

Heeding these imperatives, *The Geographical Tradition* provides a fascinating account how seafarers, magicians, empire-builders and lion slayers contributed to geography. However, when discussing the spatial science era, the period in the 1950s and 1960s also known as geography's 'quantitative revolution', Livingstone's adherence to his own methodological principles falters somewhat. After analysing how and why this happens, I continue by suggesting elements that a contemporary chapter on spatial science, following the situated messiness approach, could contain.

The Geographical Tradition's spatial science chapter is called "'Statistics don't bleed': Quantification and its detractors'. The title is reminiscent of Stoddart's (1986 157) concern that a non-militant, non-exploring geography risks ending as a 'dry and bloodless thing'. According to Stoddart (1986), such bloodlessness had happened in the 'new geography' of the Victorian era and had happened again in the spatial science era, also known in British historiography as 'new geography' (Gregory 1978). The chapter comprises three sections. The first (Livingstone 1992 305-16) is devoted to the Hartshorne-Schaefer debate. Although historically significant, it is an internalist description about a disciplinary power struggle between an (alleged) detractor (Hartshorne) and an outsider (Schaefer), who passed away before his contribution was published. The second section (Livingstone 1992 316-328) debates whether spatial science is a positivist project. By 1980, it became commonplace to critique spatial science by revealing its 'hidden' positivist worldviews (Gregory 1978, Hill 1981). Livingstone (1992 321) criticizes the anachronistic tendencies of that project, but in doing so again emphasizes the concerns of the spatial science detractors over those of spatial science practitioners. The final section (Livingstone 1992 328-346) discusses alternatives to quantification, leaving anyone eager to learn something about the actual praxis of spatial scientists empty-handed. Spatial science is largely absent from the book's chapter on spatial science.

Why is the context about spatial science so sparse in a book that is so keen on contextualising Geography's history? To explore that question it is useful to situate *The Geographical Tradition's* formative moment. The book gestated in the British disciplinary habitus of the late 1980s and early 1990s when spatial science was commonly considered a 'cul de sac' in the discipline's development (Johnston 1993 320, Philo et al. 1998), an 'ugly duckling' episode only to be remembered as a cautious tale (Van Meeteren 2017 11-13). In 1992, spatial science was still living history for British geographers. Most academics were trained in the new geography (Sidaway and Hall 2018) and had strong feelings about its (non-)merits. Features of spatial science that the book emphasises, such as generational academic politics and the imprint of the cold war (see Barnes and Farish 2006), although relevant, had become academic concerns from the 1970 onwards but were only sideshows for many of the geographers doing spatial science. Perhaps, as Livingstone (1992 329) alludes to, spatial science was still too recent to reflexively deal with internalism and presentism.

In the 25 years following *The Geographical Tradition*, new materials based on primary data (such as Martin 2015) have become available. Moreover, there is resurgent interest in practices from the spatial science era (Johnston et al. 2018, Wyly 2009), particularly prompted by the rise of big data (Van Meeteren and Poorthuis 2018). This renewed attention vindicates re-evaluating spatial science's achievements. What additional elements would merit consideration in a contemporary account of the spatial science era in the *spirit of The Geographical Tradition*?

One element of the spatial science era that the book underemphasizes is the desire for a more applied geography, both for civil and military applications (Barnes and Farish 2006, Martin 2015). This applied turn was inspired by the experiences of geographers in World War II. Many of the senior scholars supporting spatial science - e.g. Ackerman, Harris, Ullman - had contributed to the US war effort. The 1950s and 1960s supplied many applied geographical challenges. For instance, Europe and the US were motorizing at breakneck pace and increasing car ownership had to be managed. Particularly in Europe, this rapid motorization coincided with a vast post-war rebuilding effort (Edwards 1962), coupling the mobility challenge to solving a massive housing shortage. Geographers contributed useful skills to address these challenges. It is no coincidence that the first iconic spatial science book concerned highway planning (Garrison et al. 1959). Ironically, this focus on practical knowledge makes the spatial science more similar to other episodes of the geographical tradition where practical considerations were equally determining (Livingstone 1992 33).

World War II also stimulated the rise of mass education. The 1944 Service Readjustment Act ('the GI bill') enabled US war veterans to pursue higher education, leading them to flood universities. Let us consider the biography of GI bill beneficiary Robert Mayfield

(Mayfield 2013). Born in 1928 in Abilene, Texas, on the edge of the dustbowl area and growing up during the great depression, the prospect of becoming a geography professor seemed distant. Yet, his work as a young meteorology teacher in the US Air Force allowed Mayfield to enrol at the University of Washington in the 1950s. In Seattle he experienced the formative moment of spatial science. This resulted in a doctoral dissertation about central places in rural India, one of the earliest applications of that theory in the Global South. Reading Mayfield's (2013) fieldwork recollections reveals not an exposé of dry statistical operations using pre-collected data. Instead, he offers an account of exploration and intercultural interchange in a newly postcolonial state, comparable to the travel logbooks of preindustrial explorer-geographers. This was spatial science, but definitely not in disharmony with the ethos that Stoddart (1986) so passionately advocates.

Moreover, even 'laboratory' spatial science was anything but dry. Consider Duane Marble's (2010) rendition of the challenges of plotting a crude digital map of the von Thünen model with a CDC 6400 supercomputer. The pioneering use of massive user-unfriendly computers that were often only made available to geographers at night time was a defining feature of the spatial science era (Barnes 2004). Computation necessitated many simplifying assumptions and preparing card-punched spatial analyses still took days. Those involved exchanged knowledge, informally and nocturnally, how to make those imposing computers do work (see Berry 2006 80), fostering a distinctive bootstrap academic culture. Looking back, we might forget how exciting this all was and how young the academics involved were. Berry, Marble, Mayfield were all in their late 20s, early 30s, when doing their ground-breaking work. Imagine, it is the dawn of the space age, you are young and eager and the first to get to program maps on a CDC 6400 supercomputer that most people would only recognize from science fiction movies. Spatial science must have had an irresistible lure to these pioneers.

These snapshots, having become available in the twenty-five years since publication of *The Geographical Tradition*, indicate new elements that a contemporary situated messiness historiography of spatial science could consider. Being a product of the presentism of its own time, *The Geographical Tradition* focused on the debates of the 1980s. A contemporary account would ask other questions, place emphasis differently, and utilize newly available sources. To me, in view come the can-do mentality of bootstrapping, the applied character of the work, and the youthful enthusiasm and general excitement spatial science galvanized in scholars. Society was rapidly changing and the geographical imagination of spatial science played its part in the modernization process. The prospect of contributing to that historical force made the involved geographers incredibly passionate about what they were doing. Even if statistics did not bleed, they must have surely sweat.

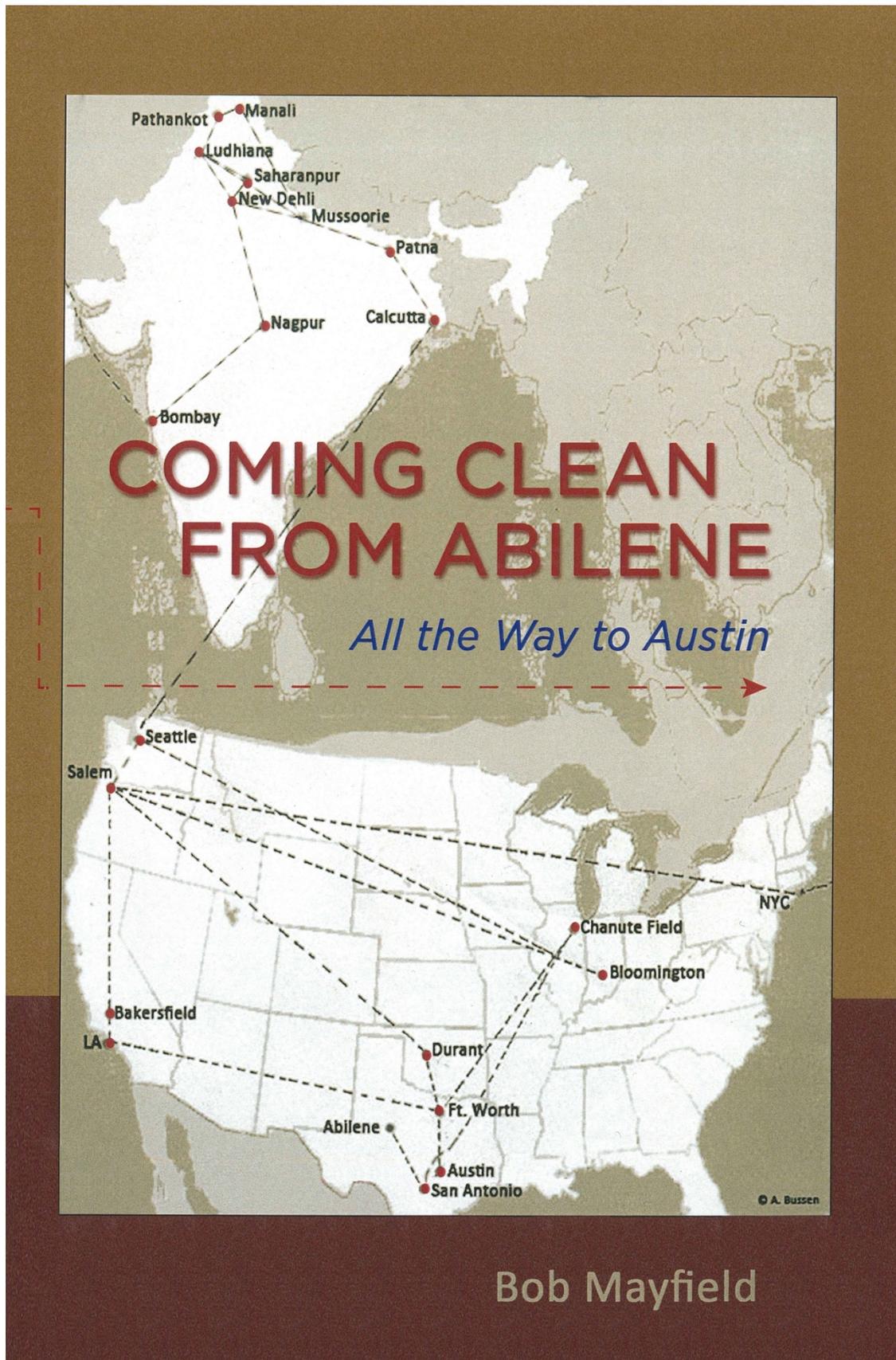


Figure 1 All but the armchair, the cover of Mayfield's (2013) autobiography depicts his early career travels, including his extensive fieldwork in India to collect data on central places.

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