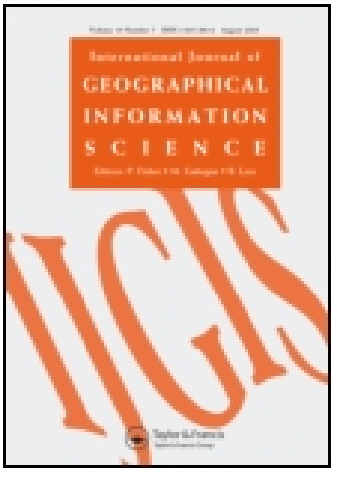

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The contested nature of historical GIS

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REVIEW ESSAY

The contested nature of historical GIS

History and GIS: epistemologies, considerations and reflections, edited by Alexander von Lünen and Charles Travis. Berlin: Springer, 2013. Hardcover $129.00 (ISBN 978-94-007-5008-1), eBook $99.00 (ISBN 978-94-007-5009-8).

The braid binding together history and geography has loosened and tightened many times since the two subjects became academic disciplines in the nineteenth century. Over the past 15 years or so, historians have again become curious about geographic concepts and methodologies. The attraction, as before, is the hope of integrating the two vast domains of human experience, space and time. Of the many digital approaches scholars are using to study the past spatially, variously called historical GIS (HGIS), spatial history, spatially enabled history (Owens 2007), or, most recently, deep mapping (Bodenhamer *et al.* 2011), HGIS is the most technically demanding and the most clearly defined by virtue of its dominant method, GIS.

Historical GIS is the subject and target of *History and GIS*. As co-editors Alexander von Lünen and Charles Travis observe in their preface, GIS remains a daunting technology, with far fewer adopters in history departments than the cheerleaders for HGIS have hoped for. Von Lünen and a number of other contributors to this volume believe that this is chiefly the fault of positivistic HGIS scholarship, most of which, they contend, is not 'good historic craftsmanship' based on empirical, archival research (216); nor does HGIS engage current theoretical interests, particularly actor-network and nonrepresentational theory. Few mainstream historians have picked up GIS, the co-editors argue, because 'GIS and its proponents have so little to offer in terms of intellectual merit, but are asking for so much in terms of learning curve' (p. vi, vii). They imply that earlier books and thematic journal issues on HGIS (Knowles 2000, Ell and Gregory 2001, Knowles 2002, Knowles 2005, Gregory and Ell 2008, Knowles 2008a), which have offered case studies as examples of how one can use GIS for history, have not persuaded many historians that the game of learning GIS is worth the candle. What historians need, von Lünen and Travis declare, is not the 'how' of GIS but the 'why'.

To answer that question the editors encouraged contributors 'to share their experiences and thoughts about why historians should use GIS' (p. vii). Ironically, a number of authors slip into the how-to mode, offering abbreviated case studies from their research that demonstrate one or another advantage of using GIS to analyze historical sources. Others rehearse the problems that GIS raises for history and propose how it might be used in closer accord with the nature of historical scholarship. The former are modest but interesting examples that broaden the repertoire of GIS applications to history. The latter raise some important issues that practitioners must address if HGIS is to flourish and grow.

Among the case studies, medieval historian Faye Taylor's is most illuminating. Her comparative mapping of miracle stories shows sensitivity to historical sources and creative interpretation of the meaning of sites and their distribution. Learn GIS, Taylor argues, so that you can discern historical patterns and relationships that are otherwise invisible. Geographer and co-editor Travis brilliantly condenses current spatial theoretical

ideas (his summary could be a syllabus for a graduate course). He then offers an example from his work tracing the movements of Irish poet Patrick Kavanagh in his rural home parish and World War II Dublin. Although Travis's maps (in space–time aquaria and 2D) do not clearly demonstrate any particular theory, they do support his argument that GIS is a visual language – 'the visualization of a cyber-syntax' – whose use requires 'logical thinking and spatial imagination', not 'statistical or mathematical skills' (p. 180, quoting Pavlovskaya 2006, p. 2013). Travis believes that by enabling historians to 'emplace' their subjects (190), GIS will empower them to write spatial narratives.

Other case studies seek to reassure historians that GIS need not be intimidating. Geographer Mark H. Palmer explains that HGIS can incorporate both qualitative and quantitative data, as he has done in a collaborative project with a Native American community. Historian of science Alexi Baker learned much about the scientific instrument trade in the eighteenth-century London by mapping dealer's stores approximately. She calls this purposely imprecise approach 'vernacular GIS', as it is based on contemporary accounts' descriptive language and relational point of view. Historians Detlev Mares and Wolfgang Moschek enthusiastically recommend GIS as a tool for stimulating students' spatial thinking and historical imagination.

The rest of the volume takes on the much broader issue of why HGIS has been unable to storm the citadel of history. In conversations with French *Annales* historian Emmanuel Le Roy Ladurie and Swedish geographer Gunnar Olsson, von Lünen muses on the precedents of historians' resistance to the quantitative revolution in the 1970s and humanistic geographers' critiques of cartography and GIS in the 1980s and 1990s. Historian David Bodenhamer eloquently argues that GIS is fundamentally ill-suited to humanistic research. Because GIS 'privileges disambiguation in its organization of knowledge, whereas the humanities treat knowledge as multivalent, equivocal, and protean', scholars should look to other digital and spatial technologies to construct spatial narratives, using a process he calls deep mapping, roughly the spatial equivalent of anthropologists' thick description (pp. 6, 10–12). 'Ultimately', Bodenhamer predicts, 'what will compel attention from historians and other humanities scholars are the broader ontological and epistemological issues of geographic information science (GISci) and not GIS as a method and technique' (p. 7). Historian David Staley, in an interview with Travis, and fellow historian Onno Boonstra report that GIS as a method, and space as a paradigmatic category, have yet to gain more than a foothold with historical researchers. Staley notes that only when that method and category become 'a regular part of every graduate student's training in history' (the stage Boonstra calls 'scientific inclusion') will we be able to say that a paradigm shift has actually occurred (pp. 147, 34–36).

The most sweeping critique of HGIS comes in the lengthy concluding essay by co-editor von Lünen, who is a historian and computer scientist. Never have I read such a negative assessment of a field by one of its proponents. In cavalier generalizations that rarely refer to any scholar or work by name, von Lünen declares that HGIS consists mainly of either rigidly structured database projects of limited use to historians, or statistical studies such as those published in the journal *Social Science History*.[1] The villains in von Lünen's narrative are geographers and cartographers, who, he claims, have 'for a long time indulged in a positivism that is staggering; cartography has stylised itself into a "mathematical-geographical, or purely scientific subject…oozing a scent of objectivity since abandoned in other fields of humanistic inquiry"' (p. 218). The way out of this positivistic dead-end is for historians 'to leave the well-trodden path set out by GIScience and chart their own territory'. Historians should appropriate GIS for their own use in 'gistory', von Lünen's term for using GIS to answer one's own questions, not

scientifically, but empirically, freely, without concern for 'the gatekeepers of cartographic knowledge' (pp. 235–236). Historian Sam Griffiths agrees. He argues that to overcome the epistemological barriers that separate GIS from history we must find ways to accommodate 'the "messiness" of historical source material and ensure that the methodological focus is not on the visualization as an end product but as part of an ongoing heuristic-hermeneutic process in which a particular line of historical enquiry may be developed but possibly not reach resolution' (p. 168).

Geographers will howl at von Lünen's caricature of their discipline, which takes no account of nearly two decades of critical engagement with the history of cartography, social theory, and the ethics and social impact of GIS. Historians may be equally incensed at his simplistic description of their craft as 'going to the archive, trawling through old documents, comparing and distilling them and writing up one's conclusions' (p. 216). HGIS is in fact what von Lünen claims it is not – a highly empirical branch of history that is rooted in archival research. Aside from national censuses and some historical map collections, very little historical data has been digitized, making it necessary for most scholars to create their own HGIS databases from scratch. Von Lünen's pugnacious jabs at HGIS do, however, highlight issues that lurk within other contributors' essays – endemic problems that have frustrated HGIS practitioners since the field emerged in the late 1990s.

One recurring problem is HGIS scholars' lack of awareness of one another's work. The extreme diversity of HGIS, with heterodox subjects and an almost infinite range of sources, works against its coherence as a field of research. How can a scholar of medieval Britain, such as Keith Lilley, critique or borrow from a study of red-lining in the twentieth-century Philadelphia, such as that by Amy Hillier (Hillier 2003, 2010, Lilley *et al.* 2009)? They use similar GIS methods (e.g., georectifying historical maps) but their historical questions, sources, and periods are profoundly different, and the journals where their work was published probably have no readers in common. Perceiving the similarities between such different research topics requires geographical and historical imagination. That combination is rare, because so few geographers are now trained to think historically and perhaps even fewer historians are trained to think geographically.

This leads to the second problem, namely the dearth of faculty guidance at the graduate level. Faculty in geography and history programs are not introducing students to exemplary works or helping them understand the strengths and pitfalls of using GIS for historical investigation. Young scholars usually encounter GIS by accident. They often struggle to find a sympathetic, let alone a knowledgeable, advisor to help them master GIS, use it wisely and creatively, and figure out how to combine it with other methods to produce well-rounded, deeply contextualized historical work. The good news is that even in the absence of such guidance, historians continue to find in GIS and geovisualization inspiring means of probing unexplored historical territory. Funding from foundations and government agencies in the United States, notably the National Endowment of the Humanities, has done much to encourage these efforts.

To provide a stronger foundation for HGIS, we need to reconceptualize GIS itself as both a technical skill and a spatial language. We need funding for the GIS equivalent of FLAS fellowships (a US Department of Education program that funds language training for graduate students). In their contribution to *History and GIS*, historian Edward Ayers and his collaborators write that historians (I would say all spatial scholars) must learn 'to explicate maps as other humanistic scholars read poems, paintings, or films. Maps will need to become agents of discovery rather than mere illustrations. Maps will have to be interpreted through language, in the forms of explication native to the writing of history'

(p. 204–5). This requires training. Graduate programs should teach students how to create and critique geovisualizations, just as they train students in writing and theory. To help establish standards for analytical graphics, academic journals and publishers should hire graphic editors and ask manuscript reviewers to evaluate visual as well as verbal content.

A third problem is the unfair burden critics put on GIS by expecting it to fulfill all our dreams for spatial history. Why should we expect GIS to do more than any other method? No one would dream of criticizing a painter because her depiction of a landscape did not take account of agricultural production. There is no question that GIS is far better suited for some methodological tasks than others. Sam Griffiths' asks, what could HGIS 'have to do with the creation of historical knowledge that would not be available to [historians] otherwise?' (p. 159). I would answer that GIS is uniquely valuable for establishing a detailed, empirical description of a previously little-known or misunderstood place, event, or phenomenon. Ground-breaking historical projects and revisionist monographs have been based on systematically compiled GIS databases of heterodox information (Talbert 2000 and http://pleiades.stoa.org; Bodenhamer *et al.* 2001, McCormick 2001, Donahue 2004, Cunfer 2005, Gordon 2008, Olson and Thornton 2011). The potential for using GIS for qualitative research remains underdeveloped, however, as several contributors to *History and GIS* observe. For example, researchers have only recently begun to use topographic representation in GIS to explore sensory histories, such as the role of sight in poets' perception of landscape and in military decision-making (Knowles 2008b, Cooper and Gregory 2011, Knowles et al. 2013b).

The fourth problem is that virtually no one working in HGIS has demonstrated how to link relevant theory to GIS methods and analysis. This may be the hardest nut to crack. Ambitious HGIS scholarship has mainly tackled historiographic issues, in the mode advocated by historical geographer Carville Earle (Earle 1992). Linking GIS analysis to nonrepresentational theory could be very challenging, but actor-network theory is quite amenable to GIS-based research. For example, GIS, in combination with archival research, can probe the social networks of industrial modernization and the networks of power that drove the Holocaust (Knowles 2013a, Herzog 2013, Knowles *et al.* in press).

In 1941, historical and cultural geographer Carl Ortwin Sauer wrote, 'When a subject is ruled, not by its inquisitiveness but by definitions of its boundaries, it is likely to face extinction. This way lies the death of learning' (Sauer 1963, p. 355). Censorious criticism, such as the rejection of quantitative scholarship by several contributors to *History and GIS*, gains HGIS nothing but a reduction in its already small numbers. Thinking about history geographically is an endlessly stimulating enterprise. We should all appropriate GIS to serve our own purposes, creatively and critically. The greatest challenge in using GIS for history is learning the instrument well enough to be able to choose how to play it, whether as a solo piece in a research article or as the bass providing underlying structure for a study of orchestral ambition. GIS alone will never be enough for great historical scholarship. No single method can be. The art of braiding together history and geography lies in finding the right combination of sources and methods to answer one's questions and the best mode of communication to share those discoveries with others. This book both fuels the debate about how we can make HGIS better and, in glimpses, shows us how.

Note

1. I edited the first collection of essays on HGIS, *Historical GIS: The Spatial Turn in Social Science History*, in *Social Science History* 24:3 (2000). The Social Science History Association

was the first and most active incubator of HGIS, thanks to the efforts of the leaders of the Historical Geography Network, particularly Ian N. Gregory, and the Association's culture of methodological experimentation and interdisciplinary exchange.

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