Reviews

Cartographies of Travel and Navigation
Edited by James R. Akerman
Chicago: University of Chicago Press, 2006
372 pp., $55.00
ISBN: 9780226010748

Reviewed by Nat Case
Hedberg Maps, Inc.

As the introduction to this book notes, there has been little significant work done on the history of mapping for travel and navigation beyond the extensive studies of early maritime charts. This collection of six essays is an excellent first step to remedy that gap. Many of us work with street and road maps, and a few of us work with other transportation map forms; it's a field that, with the rise of online and GPS navigational tools, seems to be in ever-increasing flux. This book both gives useful historical background and in a curious way points to ways of rethinking the field outside of strictly cartographic terms. I recommend it highly.

The volume is based on the 1996 Kenneth Nebenzahl lectures at the Newberry Library in Chicago, with the addition of a new article on in-car navigation systems. The Nebenzahl Lectures, according to the Newberry Web site, are "dedicated to exploring promising new themes and lines of research in the study of the science, art, and culture of mapmaking. . . . Previous lecture series have ranged from groundbreaking (as with the 1980 series "Art and Cartography") to the useful if unstartling (for example,, the early "British Cartography of Eighteenth Century North America.)" This volume tends toward the former.

This book begins with an excellent introduction by the editor, James Akerman of the Newberry Library. It really could serve as a book review in itself, giving scholarly context for the volume and noting themes that run across the essays. In particular, he notes (1) the distinction between route-specific (often non-graphic) itineraries and network maps, and (2) the evolution of maps, not as a primary means of en-route navigation, but as a tool for promotion and pre-travel route *planning.*

Catherine Delano Smith, in the second article, discusses the origins of the modern road network map in medieval and early-modern European itineraries. These were largely textual until the late eighteenth century and did not evolve into visual tools for independent way finding until the nineteenth century. This came as a revelation to me; an almost map-free travel network is hard to imagine today, but Smith makes it clear that the use of maps as a basic tool for land travel is a modern development.

The third article, by Andrew S. Cook, concerns British maritime charts and,, in particular,, the origins of the Hydrographic Office and Admiralty chart system in the work of Alexander Dalrymple. Dalrymple's life's work involved compiling and cataloging what had previously been a scattershot system of private chart-making. Dalrymple's work formed the basis for the later consolidation of charting as a governmental function. Cook provides an interesting look at a mapping program organized by personal passion rather than bureaucratic momentum and again offers a useful perspective to those of us who grew up with standardized base mapping as the norm.

The next article, by Jerry Musich, concerns the evolution of the American railroad map. His discussion focuses not on plans for train operators, but on maps promoting railroads to investors and passengers and on maps, often included in timetables, to help passengers and ticket agents plan itineraries. In the early tendency of route maps to "straighten" and simplify their lines, we can see the graphic basis for the modern mass-transit cartogram, not with the goal of achieving graphic elegance, but to make long transcontinental journeys appear more direct. While passengers certainly used the maps to see where to change trains and thus "navigate" the wider system, the article makes clear that, unlike other map types discussed in the book, these maps are essentially promotional tools which did not need to be spatially accurate. That insight is an interesting one in the context of the succeeding article.

James Akerman explores the origins of the American road map in the fifth article. Akerman discusses early bicycle maps, route-books, and route-blazing programs. The picture that emerges is of an inconsistent, often improvised prelude to the familiar oil-company maps that became the standard after 1945. In discussing the post-war era, maps as promotional tools come to the fore, and the author brings together outright promotional brochures, state highway maps, and the promotional nature of oil-company maps to describe the constellation of entities selling "the drive" to Americans.

The sixth article, by Ralph E. Ehrenberg, deals with the development of the aeronautical chart, mainly in America. Yet again, we see *ad hoc* development, largely by the pilots themselves. As with automobile

road maps, the earliest aeronautical charts were linear point-to-point directions, perhaps surprising given the "wide open skies" that air travel supposedly offered. It is also interesting to note what a closed circle the development of air chart standards occurred within: there was neither a wider general public to be appealed to, nor an established class of mapmakers to contend with; in many cases the chart-makers were pilots serving other pilots. Chart styles were created by air-related agencies and with direct feedback from the pilots themselves.

Robert L. French closes the book with a discussion of the surprisingly long history of machine-based automotive way finding. Odometer-based navigational tools have been around almost since the invention of the car. It is interesting to note how even today very little of in-car navigation is based on GPS-based location on a network map but is instead based on linear routes: distance traveled, compass orientation, and direction turned. For those of us facing a world of NAVTEK, Google, and Garmin, this article is a reminder that navigation is about tracing a line and that for most purposes a network map is merely a backdrop upon which to trace that line.

The book acknowledges itself to be a first step toward understanding the cartography of travel and, indeed, it points to a vast amount of potential research. The texts suggested some potential directions to me:

Cross-cultural comparison: Each article (with the exception of the last) discusses the evolution of map cultures in isolation from one another, with either a European or an American perspective. I would love to know how long-distance itineraries were transmitted outside of Europe before the modern era, how European road maps ended up looking so distinctly different from American ones, and how the mapping of railroads evolved internationally. Clearly,, this is beyond the scope of a one-volume project across transportation types; perhaps a next step would be focused studies on the varied international mappings of single transportation modes.

More discussion of the evolution of these maps as a graphic form and a business: Akerman's study of road maps begins with a discussion of physical and graphic forms but turns to a discussion of maps as promotion. This leaves open further discussion on the sizable contemporary industry of non-promotional way finding in the form of for-sale road and street maps and atlases. Though I'm not sure there's enough consistent graphic development to form a cohesive design narrative once road maps reached maturity in the 1950's, there is certainly a story to be told in the dominance and then retreat of oil-company maps, the rise of for-sale mapping (much of it by the same "big three" mapmakers who dominated the oil-company era), and the shift to digital production and now digital presentation.

Look at related modes of presentation: It is curious that Baedeker is hardly, if at all, mentioned in a book on maps for travel. The focus in the volume is on stand-alone map forms for travel, rather than on maps in general for *travelers*, but a look at maps as elements of guidebooks, brochures, and public displays would, I suspect, offer a useful context for much of the discussion. Travel is, after all, as much about orientation and discovery at the stops along the way as it is about the point-to-point journey.

Finding alternate ontologies to the history of cartography: It is clear in much of the book's material that other forms of communication were and are going on behind and between map communications, yet, with the articles usually focused on cartography alone, treating other types of communication as is invisible. Musich and Akerman each spend much of their respective articles looking at maps as parts of broader programs of promotion, and in Akerman's case, the discussion includes route-blazing as part of the early development of the national road system and road mapping. Still, I wanted to know not just what maps were evolving out of, but where they fit *after* their maturity in a larger context of communication for way finding. How, in a more general sense, does the mode of explorative travel (movement into the unknown with the aid of native local knowledge) evolve into independent movement over a mapped landscape?

Smith's article on itineraries provides a good model for this discussion, in that it is not about a kind of map, but about a general purpose (long-distance land navigation) and the forms of communication that were put to that purpose. She considers not just maps, but written itineraries, on-the-road local directions, and routes learned by traveling with an old hand. She quite naturally must do this because there are many parts of her narrative where there *was* no mapping involved in route-planning. The result is a very useful sense of how people knew where to go in early-modern Europe, especially Britain. In our modern world, where it is possible to obtain road maps of nearly anywhere, we are not forced to discuss non-map modes of communication. Yet, it may make the most sense in coming to terms with how we communicate about travel cartographically to look beyond the "power of maps" at the network of signage, written and oral directions, local experience and exploration, maps, and electronic location systems within which we all operate.

Without this book I don't think I would have realized so clearly the limitations of a cartographic approach. If that sounds like faint praise, it is not meant to be. The book was an enjoyable read and very well written, and it truly does offer up a comprehensive look at the subject areas each article covers, especially

in terms of early developments of mature forms. My question is whether it makes sense to pursue this frame of reference further or to alter that frame as the work is carried further.

Geocoding Health Data: The Use of Geographic Codes in Cancer Prevention and Control, Research, and Practice
Edited by Gerard Rushton, Marc P. Armstrong, Josephine Gittler, Barry R. Greene, Claire E. Pavlik, Michele M. West, Dale L. Zimmerman
Boca Raton, FL: CRC Press, 2008. vii, 248 pp, maps, figures, author index, subject index
$99.95. Hardcover
ISBN 978-0-84938-419-6

Reviewed by Russell S. Kirby
University of South Florida

Geographic information systems (GIS) have come into increasing use in health and social services research and practice. The process of geocoding to transform addresses into mappable information is an essential function, whether associated with health events or documentation of services. In this monograph, Gerard Rushton and his colleagues, most of whom have affiliations with the University of Iowa or state and federal agencies, provide a comprehensive overview of this process. In a series of thirteen chapters, theoretical and methodological considerations are discussed in detail, including analytical applications, methods for preserving privacy, and statistical approaches for analyzing geocoded health data. Each chapter begins with a structured outline, includes figures and tables to illustrate key concepts, and concludes with a series of references to materials cited in the text.

The book begins with a brief introduction in which the rationale for spatial analysis of health data and the purpose and structure of the monograph are explicated. Armstrong and Tiwari then provide a comprehensive and straightforward overview of the methods and materials used to geocode health records. In addition to defining key concepts, some commonly used geographic databases available for batch and interactive processing are described. The chapter concludes with a detailed discussion of the various types of geocoding errors that might occur and potential solutions to each type of problem. This chapter and Chapter 5 on "The Science and Art of Geocoding" are by themselves worth the price of the book to instructors teaching introductory geographical information systems (GIS) courses. The book also includes a chapter reviewing current geocoding practices in cancer registries. The North American Association of Central Cancer Registries (NAACCR) has been exemplary in its development of data collection and management standards specifically for cancer registries but with broad applicability to all types of health data, and some of these efforts are highlighted together with references to key resources.

The uses and challenges in using data aggregated by zip codes are reviewed by Beyer, Schultz, and Rushton. This chapter focuses not only on challenges in obtaining appropriate demographic denominator data (especially zip codes in relation to Zip Code Tabulation Areas (ZCTAs)), but on choropleth vs. isopleth mapping and the use of post office locations compared to geometric and geographic centroids for analyses involving generation of spatial surfaces through interpolation.

Protecting privacy and confidentiality is a major concern for managers of potentially geocode-able health databases. "Reverse engineering" could potentially identify an individual or family and reveal personal health or demographic information from geocoded location data. Accordingly, the editors chose to include two chapters pertaining to this important subject. Methods for applying geographical masks are described and evaluated by Zimmerman, Armstrong, and Rushton in the first of these chapters, and this is followed by a chapter in which Chen, Rushton, and Smith describe the methodology involved in applying one of these methods.

The book also contains several chapters exploring disease mapping methods and spatial analysis techniques. These include chapters by Rushton and colleagues demonstrating the use of spatial filters to explore scale effects and patterns generated by individual records compared to spatially aggregated data, by Waller reviewing methods for spatial analysis of point location and areal count data, and by Zimmerman on methods for analysis of incompletely and incorrectly geocoded health data. Another chapter by Armstrong, Greene, and Rushton briefly reviews methods for estimating distances and measuring geographic accessibility.

The monograph concludes with an appendix listing citations to statutes and regulations governing the cancer registries in each U.S. state, followed by author and subject indexes. The text is well illustrated with figures, diagrams, maps, and screenshots from relevant software applications, and aerial photographs to illustrate common problems in geocoding, with tables included where appropriate.

The editors and authors are to be commended for covering almost all of the basic issues in geocoding health data and using the results for spatial epidemiology, public health, and health services research. However, this text consists of only 248 pages with a