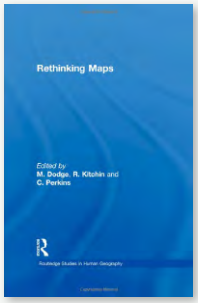
common questions/problems becomes problematic. For instance, the first chapter's title is "Identifying the Type of Coordinate System for Data using ArcMap." Compare this title to the questions that formulated the fodder for this chapter: "*... when I add the data I get an error message that says 'missing spatial reference' ...*", and "*... I get a Warning box that says 'Inconsistent extent'...*". Connecting these questions to the chapter title might seem a bit of a leap for a neophyte. While the intent was to use common coordinate system questions/problems to formulate each chapter, the present arrangement does not really benefit those who are novices about coordinate systems. For instance, assume a GIS user notices that a specific data set appears to be consistently shifted in one direction. The novice wouldn't necessarily know a datum transformation was needed. Looking through the Table of Contents, their question doesn't appear. They would then become even more frustrated in searching through the text trying to find an answer to this general question. Given the intended goal of providing practical solutions to coordinate system problems to coordinate system tyros, this chapter arrangement could be improved.

Using the basic question/problem idea as the foundation, several options for improving upon the organization and presentation of the book's material suggest themselves. First provide a succinct overview of datums, map projections, and grid systems. This material would build a foundational knowledgebase that is not tied to ArcGIS or any other software. Second, present an overview on how ArcGIS represents, stores, and handles coordinate systems. Third, organize coordinate system questions/problems into subjects having a common theme. In most cases, coordinate system problems deal with alignment themes (e.g., "*my data do not align*" or "*when I load a spatial data set it doesn't appear on screen*"). There are many different themes that could be developed, but each alignment theme would be organized according to what the GIS user would see on screen or would obtain through the Layer Properties window. An explanation as to why the problem occurred, why the situation is problematic in ArcGIS, how to conceptually understand the problem, and what practical remedies can be found in ArcGIS would accompany each theme. Fourth, a more comprehensive listing of (non-Esri tied) references should be provided that could guide the interested user to additional source material.

Despite the many color-rich pages of screen shots, callout boxes, and text, I left the book with mixed feelings about its worth and target audience. On the one hand, I could see the frustrated GIS analyst examining *Lining up Data* to learn how to identify a coordinate system based on the coordinate values shown in the Layer Properties window and how to perform some rudimentary trials on attempting to align their spatial data. On the other hand, if someone wanted to learn the foundational reasons as to why a particular spatial data set does not align one would be disappointed with this text: this book does not educate you about coordinate systems. Rather, this book is designed as an overview of how to handle common coordinate system problems in the ArcGIS environment. In short, if you need a no-nonsense book that may help you identify and solve misalignment problems in ArcGIS, this would be worth a try. If you wish to delve deeper into the field of map projections, datums, and grid systems, then look elsewhere.

RETHINKING MAPS: NEW FRONTIERS IN CARTOGRAPHIC THEORY



Edited by: Martin Dodge, Rob Kitchin and Chris Perkins.

2009 Routledge. 272 pages, figures.
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Review by: Jörn Seemann, Universidade Regional do Cariri, Brazil

Maps are changing, and so are our ideas and conceptions about them. In the early 1990s, the British geographer David Rhind observed that cartographers "are too often a group open to new technologies, but closed to new concepts" (*Proceedings of the XV ICA Conference*, Bournemouth, 1991). With the emergence of new digital features such as "apps with maps," mashups, online mapping, and geodesign, human beings have been literally plugged into a completely different world of cartography that urges them to rethink the map.

This rethinking is exactly what the three British geographers Martin Dodge, Rob Kitchin, and Chris Perkins are proposing in this collection of 12 essays from various authors on "new frontiers in cartographic theory:" identify ideas and approaches that serve as a framework within which to rethink maps. In their introduction, the editors declare that their aim is to "demonstrate the vitality of present thinking and practices in cartography" (p. 2). The essays in the volume cover a wide range of topics and approaches, from philosophical musings and state-of-the-art reports to participatory methodologies and cultural map readings; approaches that underline how mapping and mapmaking are complex and diverse processes with a strong non-technical, socio-cultural dimension that researchers need to explore.

In chapter 2, Jeremy Crampton delves into a dense web of philosophy from Plato to Foucault in order to mull over the relationship between mapping, knowledge, and race. He analyzes his topic through the historical

emergence and development of the choropleth map, which by its nature creates a false impression of bounded and homogenous space. For this critique, he introduces the reader to the idea of "clines" (areas with a continuous gradient), a term originally coined by the English biologist Sir Julian Huxley.

In the following chapter, Leila Harris and Helen Hazen present a critical approach to the mapping and mapmaking of conservation areas. They contend that the conventional cartographic approach for the delimitation of reserves and protection areas is insufficient because it does not come to grips with the migration patterns and daily routes of animals and how these can shape spaces and territories. The authors make a plea for "critical conservation mappings" that take into account the seasonal, fluid, and changing aspects in conservation, and combines cartography with topics such as political ecology and the relationships between humans and their environments. Following the recent trend toward a "more-than-human geography," Harris and Hazen invite the reader to debate, retool, remap, and perform the mapping of conservation areas.

Written by the Austrian geographer Georg Gartner, chapter four outlines the technologies that underpin Web 2.0. Contents, services, and apps such as geotagging, mashups, or blogs go beyond merely following links on the screen, and raise questions about the quality, design, and aesthetics of features as well as issues of privacy and data protection.

Michael Goodchild's contribution (chapter 5) is an attempt to sketch out a brief history of the digital representation of geographic information. He quickly describes the development of data modeling from the early 1960s, that was based on "flat files" (one record per line), through the introduction of relational data and topological structures in the 1970s, to the object-oriented approach introduced in ArcInfo 8 in 1994. Goodchild points out that the history of data modeling is a history in constant becoming. No single approach can handle the qualities and quantities of information, so in the future new ways of dealing with the representation of data will continue to emerge.

Chapter 6 describes *TheirWork*, a free online community mapping project created by Dominica Williamson and Emmet Connolly (**http://www.theirwork.org/about/**), and offers it as an empirical example for such undertakings. They describe how people from the area around Loe Pool, a small freshwater lake in Cornwall, England, can express how they feel about their own place and share their experience with others by adding information, comments, photos, and observations to an online map. The ongoing project aims to build up a detailed collaborative knowledgebase of a specific environment in order to point out the importance of conserving, preserving, and protecting our everyday space.

In her essay on the relationship between "cartographic representations and the construction of lived worlds" (chapter 7), Amy Propen takes a cultural look at maps and images and conceives cartographic practice as embodied knowledge. Far from seeing visual representations as "views from nowhere," she provides insights into how cartographic imagery can shape—and is shaped by—cultural assumptions, and how it influences the geographic imagination. In order to underline her arguments, Propen analyses visual material from the Apollo Space Program, which was the first endeavor to record images of Earth from space as the "blue planet."

The literary scholar Tom Conley rethinks maps through the lens of cinematic cartography in chapter 8. For him, both movies and maps are representations that construct narratives and help the viewer to locate himself/herself in time and space. Conley presents two different approaches to this cinematic cartography: the first refers to the philosophical underpinnings of "moving images" in the light of Gilles Deleuze's writing on cinema, while the second approach deals with the use of cartographic material in the movies themselves. Conley wittily analyzes a map that appears in Alfred Hitchcock's movie *39 Steps* and concludes that the study of cinema as a cartographic medium can open up new directions in which to rethink maps.

In chapter 9, Jim Craine and Stuart Aitken have a close look at the "mechanistic logics" of cartography and present an alternative approach to the study of mapmaking and map reading that emphasizes affect and emotion. Based on poststructuralist writers such as Gilles Deleuze and Pierre Lévy, they coin the term "affective geovisualizations" and argue that new technologies have resulted in new modes of data exploration and consequently in new forms of cognition and image appreciation.

In the tenth chapter, Chris Perkins, the co-editor of this volume, invites the reader to a "playful rethinking of maps" in a double sense: he conceives playing as both a metaphor for mapping and as an object of cartographic studies. Perkins presents the example of computer golf games and points out how the fictitious world of golf on a screen, with its simulations and its functions to map or even design golf courses, can be considered a cartography-related cultural practice that needs further scrutiny. In this approach, his focus is on performance and movement, with its relations, interactions, and practices, rather than on the representational and cognitive aspects of these computer maps.

John Krygier and Denis Wood's contribution (chapter 11) is a revised version, in the form of a graphic novel, of their theoretical musings about maps as propositions that they have presented at several conferences. In their provocative reflections, they contend that maps are subjective arguments or propositions rather than

value-free representations or pictures. By producing cartographic propositions, mapmakers are responsible for their maps. The mapmaker's versions of space and place can also be contested by other mapmakers with different propositions.

The book editors round up their (re)thoughts on maps in a final chapter they call a "manifesto for map studies." They suggest a research framework based on three M-words: *modes, methods, and moments of mapping*. "Modes" address "alternative ways to think through cartographic history and contemporary practice" (p. 220), and include maps on a screen, the insertion of cartography in visual culture in general, as well as authorship and (institutional) infrastructures of mapmaking. "Methods" correspond to the necessity of developing research strategies to study mapping practices and contexts, such as the differences between virtual and material maps, the political economy of the map production processes, and the emotional and ethnographic aspects of mapping. "Moments" entail events, incidents, and accidents that contribute to the understanding of mapping practices, and which need to be examined in detail. These (hi)stories can be "moments" of failure (for example, when something goes wrong during the mapping process), change, memory, or creativity.

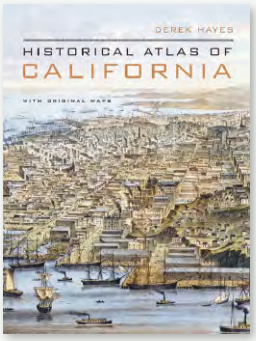
The twelve essays in *Rethinking Maps* show that the study of maps can go far beyond what are sometimes thought of as the boundaries of the discipline of cartography. Literary scholars, social scientists, political ecologists, and many other groups are all intensely interested in maps, and can definitely enrich the theoretical and practical debates on cartography with their insightful approaches to the representation of space and place. One or another mapmaker might complain that philosophy is irrelevant for cartography and that cartographic practitioners do not need this knowledge since they produce maps according to what their clients demand. However, this could be a misreading of the present situation. Similar to the video rental market, cartographers should read the sign (or the map) of the times. Just to remember, Blockbuster Inc. had to file for bankruptcy because they ignored the innovative concepts of online videos, DVD by mail and rental kiosks in supermarkets offered by their competitors Netflix and Redbox. New concepts may open up new markets, even for cartographers. In this sense, it would have been interesting to have included a chapter on "cartography in practice" in the book. An essay written by a professional from the area could give insights into the world of commercial cartography and the problems and solutions that exist.

The reader of *Rethinking Maps* may also complain about the structure of the volume. There is no clear logical order in the sequence of the chapters. One idea might have been to organize the essays according to the three M's (modes, methods, and moments) proposed by the editors in the final chapter. This way, the reader would be able to find a thread in the writing and establish links between the contributions. A wide range of different approaches in cartography should lead to dialogue and not to fragmentation.

As an invitation to rethink maps, the book could have included more figures, maps, and other visual examples to help illustrate these new directions in cartographic thought. What do these cartographies look like? How can we represent them? The exorbitant price of the volume ($150 in hardcover, but only $45 in paperback) may even make us wonder if the book format is the most adequate medium to express these ideas.

In conclusion, *Rethinking Maps* is a refreshing inspiration for the debates in cartography and serves to (auto-)reflect on our own cartographic ideas and practices. Opposite to what the subtitle of the book states, there are no new frontiers in cartographic theory: in fact, there are no limits to thinking about maps and mapping at all, and we still have not "charted" all these fascinating possibilities.

HISTORICAL ATLAS OF CALIFORNIA



By Derek Hayes.

Berkeley, CA: University of California Press, 2007. 256 pages, 476 maps, $45.00, hardcover.
ISBN: 978-0520252585

Review by: Kellee Koenig, Conservation International

From its initial black ink-engraved depictions of California as an island, to a technicolor terrain model using satellite imagery, Derek Hayes' *Historical Atlas of California* shows developments and changes in cartography as well as in the political boundaries of California. Its 34 chapters are organized chronologically and thematically, using contemporary maps whenever possible. There are also images throughout, such as posters, book covers, and photographs, to support the maps and text. The hardcover book is slightly larger than average, suggesting it would be an appropriate coffee table book.

The maps included in this atlas rightfully steal the show, with chapter text laid out as a secondary element around them to emphasize this point. The selection of maps is beautiful and interesting, presenting a wide variety in terms of theme and visual appearance.