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## REVIEW ARTICLE

# Cartography in the Twentieth Century

MARTIN DODGE

*The History of Cartography*. Volume 6: *Cartography in the Twentieth Century*. Edited by Mark Monmonier; associate editors Peter Collier, Karen Sverud Cook, A. Jon Kimerling and Joel L. Morrison. Chicago: University of Chicago Press, 2015. ISBN 978-0-226-53469-5 (cloth); 978-0-226-15212-7 (e-book). Pp. xxxiii, 1,906, illus. US \$500.00 (cloth and e-book).

For readers of *Imago Mundi* the History of Cartography project needs no introduction, and many will be well aware of the development of Volume Six: *Cartography in the Twentieth Century* down the years and its publication in autumn 2015. Following a well-established path from the earlier three volumes, this publication is another monumental tome. This is the fourth one numerically and is out of historical sequence.<sup>1</sup> It comes about eight years after Volume Three: *Cartography in the European Renaissance* was published.

As with the previous volumes, *Cartography in the Twentieth Century* has been anticipated and is much welcomed. In many respects it does not disappoint and will provide a wealth of fascinating, authoritative material for historians, geographers, map-makers, designers and map collectors, along with all those interested in visual culture in the modern era and other 'carto-aficionados'. The sweep of coverage is impressive and full praise is due to the managing editor Mark Monmonier, who has stuck with the project for many years and successfully steered it to completion—it must have absorbed

huge amounts of his time and creative energy. A sense of the scale of the undertaking can be ascertained simply from the donor list at the start, which runs to some three pages, while the detailed index is more than 90 pages long! All readers will be appreciative, I am sure, of the commitment of the small army of expert authors who contributed their ideas and insights to this important book.

In terms of presentation and content this is a huge, handsome book, the polished product that we have come to expect from the University of Chicago Press and a powerful testament to their continued commitment to the overall History of Cartography project. Unlike earlier History of Cartography volumes, which are made up of long interpretative essays, *Cartography in the Twentieth Century* has an encyclopaedic format with entries on specific subjects, written to set lengths. It contains more than five hundred separate entries and runs to more than 1,800 pages in total; for practicality it has had to be divided into two physical parts. (Having said that, each book weighs in at about 4 kilos—really too heavy to hold comfortably on your lap!) It is also available in an e-book version through library subscription services, but I did not have an opportunity to examine this format, so cannot comment whether it is an effective substitute or useful supplement for the print version, for example, in terms of navigation, keyword searching and the ability to zoom in on map illustrations to see more detail.

Both parts of Volume Six are graphically rich to browse with more than a thousand illustrations,

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many of them generously sized colour maps, with pin-sharp reproduction quality. On a random exploration, the book turned up many fascinating map figures that I had never seen before, sparking my interest to read the accompanying text.

The range of entries runs from 'Accuracy in Mapping' and 'Alpine Cartography' to 'Women in Cartography' and 'World Aeronautical Chart', with much, much more in between. Some entries struck me as unusual but interesting, such as 'Astrophysics and Cartography', and I enjoyed the more unexpected takes on mapping including 'Air-Age Globalism'. There are biographical entries on around fifty 'important' individuals, along with some rather dry institutional histories of map-producing agencies and companies, mostly situated in the United States and Europe.

From the range of different entries that I have read in detail the quality is high, imposed in part by good author selection and the rigorous editing process, although geographical coverage and historical depth are variable, which is unavoidable given the wide scope and different backgrounds of the contributors. Delving into particular entries that are of interest to me (for example, Jacob Shell's piece on 'Urban Planning' and the 'Web Cartography' entry by Michael Peterson), I found them cogent and well researched. And while I might have disagreement with the interpretations of some of the authors, I could not fault the factual veracity or evidence deployed. Overall, I have confidence that *Cartography in the Twentieth Century* can be regarded as a thoroughly reliable reference source.

#### *Less Division and More Depth?*

*Cartography in the Twentieth Century* is certainly a bold encyclopaedic undertaking, but is it too big and even a bit bloated? The rhythm and reason underpinning the choice of categories and the distinctions between entries was unclear to me. The process is outlined in some detail by Monmonier in his introduction, where he notes that they applied a 'philosophically sound, logistically realistic framework known as hierarchically integrated conceptual clusters'. However, I was still left wondering, would a smaller number of more substantive topical entries have been better? Fewer entries would help the reader physically navigate between so many cross-referenced pieces.

Probably a good number of entries are non-essential, and if you were being brutally strict, in terms of genuine significance to the cartographic history of a whole century, I think some could have

been dropped or combined. For example, is there a need for a separate entry on 'Orienteering Map', covering nearly four pages including three illustrations and two tables, when key material could have been folded into the 'Wayfinding and Travel Maps' entry. Can a separate 'London Underground Map' entry be justified? Harry Beck's diagram is undoubtedly a design classic, but it could have been discussed as part of transport cartography or underground railway maps. What about the 'Vinland Map' entry—really essential?

Do we need the short entry on the 'Automobile Association (U.K.)' and its half page reproduction of a rather prosaic 1:200,000 scale road map for Thanet? Again, thinking about the intellectual agenda of this encyclopaedia, which is to summarize and to account for a century of mapping history to a worldwide audience, is the AA in Britain a significant enough institution for inclusion? 'Computer, Digital' also struck me as an odd little entry; it is less than one page and has no illustrations. Yet the next entry on 'Conformality' is three pages long and includes two figures. Overlaps seem likely in 'Aeronautical Chart' and 'World Aeronautical Chart', offering obvious scope for conflation. Could 'Dialect Map' be melded with 'Thematic Mapping', perhaps 'Redlining' subsumed into 'Property Mapping'?

The sheer diversity of topics separated out into too many entries can have an impact on the volume's usability for reference and risks impeding the synthesis of ideas. Like most encyclopaedic references, Volume Six will work well if you know what you want or have a good idea where to start looking for entries likely to have material relevant to your enquiry. For students and scholars unfamiliar with cartography it is going to be less helpful in finding answers to their queries or in obtaining a depth of understanding.

*Cartography in the Twentieth Century* describes lots of things in detail, but this material is split into hundreds of alphabetically arranged entries, meaning there is little sense of change in the broader patterns over the course of the century, in the overarching forces and the wider impacts of new ways of visualizing space. Apart from Monmonier's introduction no attempt was made to pull multiple threads together, to synthesize across places or through time. Without timelines, chronologies of key events across themes or any graphical presentation of trends, readers are left without an overview. The editors suggest a hierarchical clustering of entries into larger themes, and partly depict this on the frontispiece of the

books, but I did not find this a helpful organizing device.

So if someone comes to this book attracted by the title alone, looking for a narrative story of the emergence of modern forms of mapping across the twentieth century, they will be disappointed and overwhelmed with a diversity of starting points. I appreciate that this is an unfair criticism to level at a cartographical encyclopaedia and a classic case of a critic wanting a different book from the one presented for review. I am sure other scholars will in time write such sweeping narrative histories of mapping through the last century, and perhaps Volume Six will provide an impetus to researchers to begin such efforts; it will certainly be a valuable reference source.<sup>2</sup>

#### *Points of Contention*

Looking through the individual entries in *Cartography in the Twentieth Century* and searching for the overall pattern of thematic categorization, several issues came to mind. These centred around ethnocentrism, excessive technological focus, the failure to take account of deeper political forces, the need for more on mapping as a practice, and some scope to take cartography less seriously and focus on the ephemerality of so much everyday mapping.

To look at each of these in turn; first, Volume Six, unlike some of the earlier *History of Cartography* volumes, seemed to me rather obviously a product of time and place and an editorial viewpoint rooted in the American context. (A visual indicator of this bias is evident when browsing through, and one begins to note the multiple occurrences of illustrations using maps based on the continental United States or American cities.) Entries are, of course, all presented in English, but the topic selection also seems Anglo-centric in focus. Despite evidence of efforts by the editors to be international and inclusive—for example, entries on many ‘foreign’ mapping institutions and in the choice of key people—this is definitely an Anglo-American perspective on the history of cartography, albeit with a strong representation of Europeans. It is conventionally constructed from a Western view of the world and lacking in a sense of independent activities emerging in Asia, Africa and the Global South.

Second, the historical period covered by *Cartography in the Twentieth Century* clearly was a time of tremendous technological change in surveying, compilation and map production, spurred in large part by huge military investments during

the two world wars and the decades of the cold war. Developments in aerial photography, satellite imaging and GPS, computer databases and software tools have profoundly affected cartography. But is Volume Six too enslaved to a technological narrative—a bit ‘boys and their toys’—with entries on ‘Cruise Missiles’, ‘Holographic Maps’ and ‘Virtual Reality’?

There are hints of determinism here, with the inference that cartographic developments were inevitably, positively and primarily driven by the technologies and the agendas of scientists and engineers. I felt that *Cartography in the Twentieth Century*, in its overall conception, was in danger of setting up a universalist and positivist presentation of recent history that the founders of the *History of Cartography* series had sought to downplay.<sup>3</sup> Although, to be fair to the editors, there are some countervailing voices to the dangers of technofetishism, with good entries that touch upon issues of cultural critique (for example, ‘Literature’ and ‘Narrative’) and aesthetic changes (the ‘Art’, ‘Cinema’ and ‘Political Cartoon’ entries).

Broader areas of social change, politics and political power, and the influence of media all seemed less well covered compared with mapping technologies, geospatial engineering and aspects of cartographic science. It also felt weaker in offering explanations relating to the underlying economic structures and ideological forces that shaped visual culture in the twentieth century. As a counterbalance to all discussion on survey techniques and printing systems, I wondered if Volume Six needed meaty entries on concepts like ‘Modernism’, ‘Communism’, ‘Feminism’ and ‘Capitalism and Cartography’?

Third, *Cartography in the Twentieth Century* is very much about the production of cartographic artefacts, yet, in scholarship, understanding mapping as a practice is a growing concern.<sup>4</sup> There is here much depth of discussion on how maps were made—the craft of cartographers and skills of allied workers—but much less on who used them and how they were enrolled to solve problems and to see the world in particular ways. I felt there was scope for more examination of the changing role of maps in everyday contexts, amateur efforts and folk mapping, entries on the broadening map consciousness through time (or equally to consider how maps have been usurped by other media or have simply faded into the background informational landscape).

My last point of contention is about cultural interpretation; what counts as legitimate? What

needed to be documented more broadly is how mapping emerges 'from below', rather than seeing only a history imposed 'from above'. As you would expect from a scholarly encyclopaedia, the subject of cartography is to be taken seriously, but does this mean that Volume Six has to overlook, as it seems to, much of the fun of mapping and ludic possibilities of different map forms? For me this is a big part of what makes cartography a socially significant practice.

Little coverage has been given to the 'carto-facts' produced down the years, the trivialities and topophilia derived from maps, the idiosyncrasies of design and decoration, the pranks, and the humorous and whimsical envisioning of places. Should an encyclopaedia try to document the enjoyment of playing with maps, the deep emotional connection some people have to particular cartographic objects, how personal memories can be beckoned into being through maps.<sup>5</sup> What about the failures, the cartographic blunders, the accidental errors or the deliberate corruption of cartographic ethics? (There are entries on 'Cartographic Traps' and 'Eurocentric Bias' and, of course, the 'Vinland Map' hoax.)

So many bad maps are made and used, but is poorly executed cartography too painful to look at and contemplate? The result, in my opinion, is that Volume Six comes across too much like the official committee-sanctioned view of cartography from the rather po-faced perspective of scholars ensconced in university labs and libraries, and it never quite captures the messy reality of mapping on the streets or the politics of all the unofficial and provisional maps that were deployed but never meant to be kept—all those denied a formal cartographic voice are absent from this volume.

#### *Access and Impact on Intellectual Discourse*

Leaving aside these contentious points of criticism, I want to raise a more practical concern about access to the high-quality scholarship in these books. Across academia there are strong movements for 'open sourcing' and the recognition of need for more inclusive knowledge dissemination primarily by making published material freely available online. While *Cartography in the Twentieth Century's* physical manifestation is an impressive testament to intellectual endeavour, it is also expensive and an exclusive form of knowledge. The University of Chicago Press do clearly need to recoup the sunk costs of production of such large encyclopaedias and seek revenues to sustain their future publishing work. And to their credit they

have allowed free online access to Volumes 1 to 3 of the History of Cartography, although only as large downloadable pdf files.<sup>6</sup>

The concern then is how much real impact can this book have on historical discourses around cartography and influence on mapping scholarship into the future if people cannot access it? I fear that the initial impact and lasting influence of *Cartography in the Twentieth Century* will be severely constrained since it cannot compete for visibility with freely accessible web information such as the Wikipedia entries in Google search results. Sadly few of my students would take the trouble to access the single print volume on the library shelf, even if specifically cited on a class reading list, because they now assume an instant answer pulled up on their smartphone will be sufficient. This would be a real shame and represent a lot of wasted effort for all those involved.

Moreover, is Volume Six something of a lumbering print 'dinosaur', the product of a twentieth-century scholarly publishing model released well into twenty-first century's new media landscape? To face the access challenge and help ensure that *Cartography of the Twentieth Century* has wide impact the University of Chicago Press and the History of Cartography Project need to be encouraged to produce a fully structured online version to exploit the encyclopaedia format and to make this endeavour easily findable in search engines (and ideally without subscription barriers). Something like Elsevier's online delivery of the *International Encyclopaedia of Human Geography* might be an example.<sup>7</sup>

In conclusion, *Cartography in the Twentieth Century* has significant intrinsic value. This is scholarship of the highest quality, well executed, edited properly and produced with attention to detail by the University of Chicago Press. In an age of quick-and-disorganized reference works, poorly edited handbooks, endless reprints of classic works and weak monographs of salami-sliced research, it is reassuring to see people willing to take the time necessary to get a worthwhile project done properly.

Having said this, Volume Six exhibits the tension in any wide-ranging encyclopaedia project between what C. P. Snow famously described as the 'two cultures' in academia. The range of entries, which through alphabetical listing are often juxtaposed, tend to speak past each other: entries on cartographic cultures interpreted in the humanities tradition do not relate to pieces detailing maps through

the lens of applied science and technology. The tension between the two cultures remains irresolvable in some respects, but I felt Volume Six falls rather too much on the side of cartographic science at the expense of social and cultural readings of maps.

While *Cartography in the Twentieth Century* is too expensive for most to contemplate as a personal purchase, I would strongly encourage readers of this journal, in particular, to petition their institutions and libraries to buy copies of Volume Six. Substantial sales of this valuable encyclopaedia will be some reward to all those involved in getting it into print, and will be an encouragement to complete Volumes Four and Five; it will be a signal of support for the overall *History of Cartography* endeavour.

#### NOTES AND REFERENCES

1. The anticipated publication dates are 2019 for Volume Four: *Cartography in the European Enlightenment*; and 2021/2022 for Volume Five: *Cartography in the Nineteenth Century*.
2. Two good examples for the nineteenth century come to mind: Susan Schulten, *Mapping the Nation: History and Cartography in Nineteenth-Century America* (Chicago,

University of Chicago Press, 2012); and Jason D. Hansen, *Mapping the Germans: Statistical Science, Cartography, and the Visualization of the German Nation, 1848–1914* (Oxford, Oxford University Press, 2015).

3. See the introductory essay by Brian Harley in Volume 1: *Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean* (Chicago, University of Chicago Press, 1987) as well as his seminal paper that did so much to kick-start critical cartography over the last twenty-five years; J. B. Harley, 'Deconstructing the map', *Cartographica* 26:2 (1989): 1–20.

4. Rob Kitchin and Martin Dodge, 'Rethinking maps', *Progress in Human Geography* 31:3 (2007): 331–44.

5. Some aspects of this are elucidated in Alastair Bonnett, *Off the Map* (London, Aurum Press, 2014); and in Mike Parker, *Map Addict* (London, Collins, 2009). I am also reminded of Brian Harley's own essay on maps and memories, 'The map as biography: thoughts on Ordnance Survey Map, Six-Inch Sheet Devonshire CIX, SE, Newton Abbot', *Map Collector* 41 (1987): 18–20.

6. Available at <http://www.press.uchicago.edu/books/HOC/index.html>. There is also an indication from the editors that the entries from Volume 6 will be made freely available online two years after print publication.

7. *International Encyclopedia of Human Geography*, ed. Rob Kitchin and Nigel Thrift (Amsterdam, Elsevier, 2009); available at <http://www.sciencedirect.com/science/referenceworks/9780080449104>, although it does require an institutional subscription for access to full articles.