



Antonio Lafreri [Carta Marina] Olavs Got. Benigno Lectori... 1572.

BOOK REVIEWS

The History of Cartography Volume 6, Parts I and II 'Cartography in the Twentieth Century'

edited by Mark Monmonier. Chicago, University of Chicago Press, 2015. ISBN 978-0-2265-3469-5 (cloth); ISBN 978-0-2261-5212-7 (e-book). HB with dust jacket, 1,960 pages 805 colour plates, 119 halftones, 242 line drawings, 61 tables. US \$500.



In the mid-1920s French hydrographers developed the 'Marti' recording system for depth determination, using something akin to preparing a copperplate for etching: the soot from an open flame would coat the paper, followed by a mechanical stylus inscribing depth profiles derived from echolocation. The system wasn't in use for long, given the unsurprising propensity of the paper to burst into flames. How to address a century of proliferating technologies from what now seem exotic, analogue methods to GPS devices based on satellite data, small enough for car, boat or hand? Charting this heterogeneity is precisely what Volume 6, in two, hefty parts accomplishes. No other scholarly project or resource¹ comes close to covering this range of cartographic methods and topics in the twentieth century and, now that it exists, already seems impossible that we could have gone so long without it. If you have ever wished to better understand geodesy or geographic information systems (GIS), unpack

acronyms from VICAR to TIGER, IDRISI to ODYSSEY, or compare what the USGS were doing at the same time as their Soviet counterparts, this volume is an excellent place to start.

Unlike the previous volumes of the History of Cartography series, entries are organised alphabetically like an encyclopaedia. Think of a topic and look for that title; if it's not there, a redirection to where you want to go is usually offered. A search for 'digital cartography' sends you to 'electronic cartography' and a clear list of subtopics are provided at the outset. As ever, the author of the entry is named and crucially, for a scholarly enterprise such as this, bibliographies are not kept at a predefined maximum; some are substantial. Also unlike former volumes, bibliographies are kept with each entry. The inside covers of both Part I and II show topic headings arranged by conceptual cluster, and Part II contains the generous index, both providing further paths through what might otherwise be a daunting amount of material. The chances of encountering new information may be higher from these arrangements, so reading about specialist subjects such as Kriging (a predictive method, useful in mining and other applications) or Lidar (a remote sensing system using lasers) – as two examples only – might not occur without individual headings, cross-referenced in a 'see also' list appearing at the end of each entry. Of course this may be a feature of browsing, generally speaking; one wonders how the material will be divided for PDF download as has been done for some of the series' existing volumes.

As the author of many monographs on twentieth-century cartographic issues including controversies of naming, spying and surveillance, cartographies of weather and much more, Mark Monmonier was the apposite choice for the task of chief editor. He has been accompanied by four esteemed scholars as associate editors: Peter Collier, Karen Severud Cook, Jon Kimerling and Joel Morrison; over 300 further experts have contributed to the volume. If the range of authors is not hugely variable in their respective backgrounds – academics in the USA and Europe predominating – they are far more numerous than for other volumes, reflecting the multiplicity of topics covered. The overall editing decisions and what such a volume entails have therefore been exceptional and, unsurprisingly, took over fifteen years from initial

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forays to final publication. In the very informative processual history of the volume's development, provided at the end of Part II, Monmonier proposes the volume as 'a reference of first resource'.² This is critical, as expectations usually exceed the reality of any reference work, as it is by definition impossible to cover everything in the depth that an expert in the field might wish for. It is also impossible to undertake such a broad survey and cover all items of interest, so each reader is likely to identify omissions based on their own knowledge or preferences. Monmonier also rightly proposes that any such gaps are opportunities for fresh research; some biases – even if acknowledged – are worth revisiting, so more on that below.

The military origin of many current satellite-based spatial technologies is well known. Nevertheless it was still surprising to read that the single, greatest output of paper maps produced – 100 million – for a single purpose was in service of the 1991 Gulf War.³ *Warfare and cartography* has an independent, overview entry covering key issues, as does *Military mapping of geographical areas*, i.e., defence forces undertaking cartographic work for the state, with multiple, national subsections.

The entry *Military mapping by major powers* contains subsections for the USA, NATO, Great Britain, France, Germany, Italy, Austro-Hungarian Empire, Ottoman Empire, Israel, Russia and the Soviet Union, China and Japan. Cold War topics are well covered with an excellent overview that leads to other entry titles that are necessarily broader in scope, such as mapping by the US Intelligence Community, as well as the relationship to photogrammetry, remote sensing and GPS. There's even an entry titled *Cartographic duplicity in the German Democratic Republic*, outlining the systematic, officially sanctioned practice of creating false sets of topographic and other maps for the purpose of misleading or confounding. Greater access to information from the former Soviet Union has benefitted this volume enormously in relation to other, non-military topics, including entries on Soviet cartographic institutions and individuals (Fig. 1).

Some conflicts have continued from last century into this one. Examples such as the Sino-Indian border tension that creates headaches for Google Earth, the critical role of maps in Israeli-Palestinian negotiations, or the naming issues over what is conventionally called

the Sea of Japan are registered (not, in these cases, with specific entries) in such moderate tones it can be hard to read them as controversial. The entry *Decolonisation and Independence* contains a single sentence merely noting what generated the twentieth century's largest mass human migration, the 1947 partition of India and creation of Pakistan. This event had been exacerbated by problematically conceived and implemented demarcations, known as the Radcliffe Line, which set boundaries for the immediate movement of what is usually considered to be some 14 million people, with immense mortality in its wake. Cartography's pivotal role in this event is not explored in otherwise robust entries such as *Nation-State Formation and Cartography*, *Boundary Disputes*, *Colonial and Imperial Cartography*, or in any of the entries relating to India (Pakistan itself, let alone the Radcliffe Line, does not appear in the index).⁴

Before this volume, the shift from analogue to digital cartographies has been arguably more difficult to find histories or quality information about, beyond general overviews or technical information on specific processes. For some, the medium is old wine in new bottles; for others, this change will affect human subjectivities for decades, if not centuries to come. This 'swerve' of our time is well registered in the initial entries on GIS, or the processes explored as precursors for today's practices, such as photogrammetry or the early rivalry between the US Corona satellite programme and the initially more advanced Soviet Zenit system, as just two examples amongst many. The military genesis of these methods is well covered and is one of the volume's strengths. In the entry *Cruise Missile*, reasons for the relatively scarce in-depth investigation of such technologies is proposed as secrecy surrounding military developments combined with scholarly reluctance to acknowledge these origins.⁵ This discussion is further developed in a section resonantly titled *The Uses (and Abuses) of GPS*, for example, questions around these methods as inherently militaristic or neutral.⁶ The multiple-sectioned entry for *Remote Sensing* – a topic also discussed in similarly in-depth entries for *Topographic Mapping*, and more – covers the histories of a variety of aerially based technologies and their applications. It also usefully contains a subsection on how data is transformed into the kind of imagery we increasingly take for granted. In the *Gulf War* entry is a reproduction of Colin Powell addressing White House staff, using physical maps, but consider his 2003 speech as US Secretary of State to the United Nations in support of claims for Iraq having weapons of mass destruction:

Let me say a word about satellite images before I show a couple. The photos that I am about to show you are sometimes hard for the average person to interpret, hard for me. The painstaking work of photo analysis takes experts with years and years of experience, poring for hours and hours over light tables. But as I show you these images, I will try to capture and explain what they mean, what they indicate to our imagery specialists.⁷

Given the degree of translation and re-organisation satellite data undergoes an entry on digital, spatial image literacy could have been fitting. Like many everyday technologies, we often use the end product without understanding how it is created and what the implications of that might be; there is much work to be done in this arena (Fig. 2).

One bias that was not discussed in the processual account is so fundamental it can be hard to imagine any alternative, our increasing dependence on data notwithstanding. This is the map's pre-eminence as a visual entity (we can no longer say artefact): in so many ways, the map has become Lord of the Infographics. Western cartography has long been visual at its core, although not exclusively. Locative practices delivered via non-visual means, especially those from indigenous cartographies, is a significant absence from this volume. Despite the hope expressed in the entry for *Histories of Cartography* on the 'need to integrate non-European cultures into general narratives on map history',⁸ the main entry related to this subject concerns the impact of Western cartography on the indigenous. Perhaps fifteen years ago it was thought that those topics were covered in Volume 2, Book 3 of the series as *Cartography in the Traditional African, American, Arctic, Australian and Pacific Societies*, published in 1999, just before work on the current volume began. With all due respect, the majority of its entries had been written by white, non-indigenous scholars; also, many cartographic practices that have either survived or have flourished in the meantime could be of interest to many: from the resurgence of Pacific navigational methods, to the current fates for the astonishing maps of Aboriginal cultures hiding in plain sight as art, to international comparisons on indigenous naming issues, to name a few. Some of these topics are mentioned, sometimes in just one sentence, but a significant opportunity may have been missed to canvas developments over the last decade and a half for cartographies with radically differing ontologies than our own.

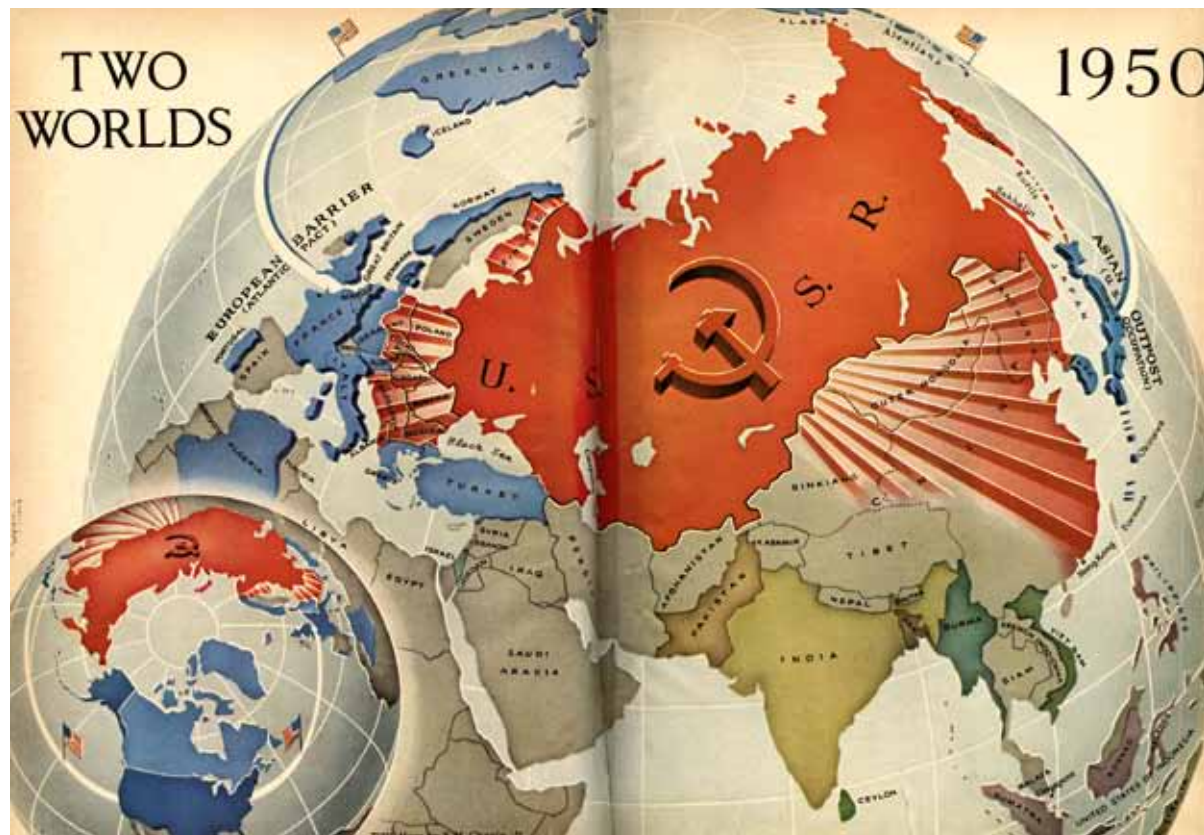


Fig. 1 Anticommunist Polar Projection Map, 'Two Worlds', 1950, by Robert M. Chapin. From *Time* magazine 55, No. 1 (2 January 1950): 34–35.

Readers do therefore need to take the (acknowledged) orientation to Western, superpower-driven concerns of the volume into account. Having said that, what this volume does well, it does particularly well, both deepening available information on key spatial practices that increasingly affect us all, irrespective of class or culture. So rich is this material it is hard to do it justice in review. It also brings these practices to the attention of many more people than otherwise would have been possible. Arguably then, one of its greatest contributions is to bring this quality information into one volume, putting a spotlight onto its histories – military and otherwise – thereby taking the subject of twentieth-century cartography beyond the realm of the experts. This is likely to stimulate many new markets for maps, but hopefully too a market for new ideas and responses.

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Notes

- 1 Wikipedia is not in the same scholarly category, primarily because authors are not identifiable, so mistakes have little or no professional consequences. Nevertheless it remains a major portal for information on contemporary topics, so warrants mention. Yet searching via keywords ‘cartography’ and ‘mapping’ reveals limited subject areas, although some topics have in-depth entries, for example ‘The Sea of Japan naming controversy’; it may be useful – with the attendant grains of salt – for specific issues, but cannot really offer a synthesis of the information that this volume is able to.
- 2 Mark Monmonier, (ed), *The History of Cartography Volume 6: Cartography in the Twentieth Century*, Chicago, University of Chicago Press, 2015, p. 1789.
- 3 *Ibid.*, p. 570.
- 4 Are we therefore to assume there has been no contribution to mapping in the twentieth century outside the dominant cultures? Consider the fate within this volume of my home country, New Zealand, as an example of a non-superpower: you could be forgiven for thinking little innovation or interest had taken place here. Like Australia, this country is well known as an ‘early adopter’ of new technologies so extremely early national computer map production might have warranted coverage, from aeronautical charting in the 1970s to the international award winning *Historical Atlas of New Zealand*, published in 1995 (mentioned in a subsection on national atlases). Discussion of Larry Lee’s work, illustrated in the entry on conformality in map projections, does not reveal that it was done here.
- 5 Author John Cloud notes it is the Cruise Missiles’ ‘earth models’ and subsequent ‘cartographic mechanization and integration’ that have had a long-term impact on contemporary mapping technologies. Monmonier, op.cit., p. 291.
- 6 Monmonier, *ibid.*, pp. 555–57. Author William J. Rankin ends this section with a most resonant paragraph of relevance to my next topic, ending with: ‘And thus with GPS the basic political question, as ever, is not what or how, but by whom’.
- 7 The photo of Powell in the White House is on page 569; full text of Powell’s speech is visible online via *The Guardian* at (seen Friday 22 January 2016): www.theguardian.com/world/2003/feb/05/iraq.usa – but also see a discussion of this speech in the context of imagery in Laura Kurgan, *Close Up at a Distance: Mapping, Technology and Politics*, Brooklyn, NY, Zone Books, 2013, pp. 19–30.
- 8 Monmonier, op. cit., p. 612.

Fig. 2 Radar satellite image mosaic of Antarctic ice sheet. Made using Advanced Very High Resolution Radiometer (AVHRR) images collected between 1980 and 1994. Original digital mosaic corrected into polar stereo graphic projection by the National Remote Sensing Center, United Kingdom. From Richard S. Williams and Jane G. Ferrigno, eds., *State of the Earth's Cryosphere at the Beginning of the 21st Century: Glaciers, Global Snow Cover, Floating Ice, and Permafrost and Periglacial Environments*, Satellite Image Atlas of Glaciers of the World, 1386A (Washington, D.C.: U.S. G.P.O., 2012), fig. 6A. Image courtesy of the U.S. Geological Survey.