
COMMENT

The Practices of Mapping

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Introduction

For the past three decades Denis Wood has explored the nature and power of maps; how maps are designed, used, and understood, the role of maps in society; and cartographic theory more broadly. His collaboration with John Fels, *The Natures of Maps*, furthers this project and seeks to detail both the nature of *maps* and the *nature* of maps. For Wood and Fels, ontological thinking about cartography has been fixated on the nature of *maps*. They illustrate this argument with reference to Arthur Robinson and J.B. Harley, two cartographic theorists with very different ideas about the ontology of maps – maps as objective truths and maps as social constructions. Wood and Fels argue that, despite their differences, Robinson and Harley both conceive of a map as having an inherent truth (they note that for Harley the map itself remains ideologically neutral, with ideology bound to the subject of the map and not the map itself). Wood and Fels reject this position to argue that the map itself, its very make-up and construction – its self-presentation and design, its symbol set and categorization, its attendant text and supporting discourse – is ideologically loaded to convey a particular message. In so doing, a map does not simply represent the world, it produces the world. To illustrate their argument, they use the example of the *nature* of a map – how the supposedly neutral, objective natural world is *produced by* maps – to demonstrate how maps produce nature rather than reflect it.

The Argument

The Natures of Maps seeks to extend Harley's ontological musing to make the case that a map does not simply represent the world through an ideological frame but,

rather, “*creates* ideology ... transforms the world *into* ideology” (190). In other words, like others including John Pickles (2004), Wood and Fels make the case that maps are not representations but inscriptions – they capture something of the world while simultaneously doing work in the world; they precede and produce the territory they represent. They conclude that “the map is nothing more than a vehicle for the creation and conveying of authority about, and ultimately over, territory” (190). This authority, they continue, is asserted through spatial/meaning propositions the map makes – “*this is there*” (190). Maps do work in the world by exclaiming such propositions, which Wood and Fels term “postings.” Posting is the means by which an attribute is recognized as a valid class of attribute (in their case, some class of the natural world) and is spatialized; the means by which the *nature* of maps (*is* – category) and the nature of *maps* (*there* – sign) conjoin to create a unified spatial ontology (*this/there*). However, the map extends beyond spatial ontology by enabling higher-order propositions – “*this is there and therefore it is also*” (191) – to link things in places into a relational grid.

The power of this spatial propositional framework Wood and Fels argue is affirmed through its call to authority – of being an objective reference object that is prescriptive, not descriptive (that is, the map prescribes – produces and reaffirms – territory rather than describing territory). Authority is conveyed through what they term the “paramap.” A paramap is the combination of “perimap” and “epimap.” The perimap consists of the production surrounding a map: the quality of the paper, the professionalism of the design, the title, legend, scale, cartouches, its presentation, and so on. The epimap consists of the discourse circulating around a map, designed to shape its reception: advertisements, letters

to reviewers, endorsements, lectures, articles, and so on. Together, perimap and epimap work to position the map in a certain way and to lend it the authority to do work in the world.

Because maps are systems of propositions and are prescriptive, Wood and Fels contend, map creation should not be solely about presenting information through attractive spatial representations, as advocated by the majority of cartographic textbooks (which borrow heavily from the traditions of graphic design). Instead, they suggest, map design should be about the “construction of meaning as a basis for action” (194). They propose turning to cognitive linguistics to rethink map design as “cognitive cartographics.” Cognitive linguistics examines the ways in which words activate neural assemblages and open up “thinking spaces” in the mind, within which meaning is constructed by linking present information with past knowledge. Wood and Fels contend that maps perform like words, likewise firing up thinking spaces. Employing cognitive cartographics, they suggest, will create a non-representational approach to map design, focused on meaning construction and not on graphic design and the nature of signs. It will also enable cartographic theory to move beyond the compartmentalized thinking that has divided map-making from map use by providing a more holistic framework. In other words, both map design and map reading can be understood through a cognitive cartographics framework.

Critique

While *The Nature of Maps* has ideas that do advance our thinking about maps – especially the discussion of paramaps and cognitive cartographics – it also has a number of shortcomings that invite critique. In setting out this critique and advancing a different conception of how we can productively rethink cartographic theory, I am aware that Wood and Fels’s contribution to this issue of *Cartographica* is the first chapter of a book. As a result, my critique is limited to the ideas and discussion in that chapter alone, and I have had to assume that the dominant ideas of the book are outlined therein. It may well be the case that aspects of my critique are addressed elsewhere in the book. That said, I am confident that Wood and Fels and I differ significantly with respect to our ontological understanding of cartography. I have four points of concern.

First, the piece is curiously detached from the recent literature on cartographic thought. Those unfamiliar with the field might be left with the impression that Wood and Fels are the lone scholars pushing the ontological boundaries of cartography beyond the work of Harley. This is simply not the case, and much thinking has been done on the ontology of maps since Harley’s untimely death by Jeremy Crampton, John Pickles, Denis Cosgrove,

Martin Dodge, Mathew Edney, John Krygier, Chris Perkins, and others. The growing fields of critical cartography and critical GIS are testimony to this. Whether intentional or not, the lack of any sustained engagement with the work of other contemporary cartographic theorists works to silence them and to position Wood and Fels in a particular way – as the next (and only) logical step in cartographic theory after Harley. Given that this is a scholarly piece, aimed primarily at a scholarly audience, I think it would have been more productive to give a detailed overview of other theorists’ thinking in the post-Harley period and of how the ideas in *The Natures of Maps* build upon, develop, and differ from them. In particular, an engagement with Edney’s (1993) notion of a non-progressivist history of cartography, Crampton’s (2003) discussion of cartography as a set of ontic knowledges, and Pickles’ (2004) positioning of cartography as a post-representational science would have been useful, especially as Wood and Fels’s ideas are highly related.

Second, maps themselves, within Wood and Fels’s analysis, seem to be taken for granted and quite tightly defined. Interestingly, the book does not start with an examination of what a map is; this is taken as a given. Instead, it asks us to reconsider the nature of what we supposedly already know by troubling accepted cartographic theory. The problem with this approach is twofold. First, the map continues to enjoy ontological security – despite being revealed as ideological, rhetorical, relational, the map remains secure as a coherent, knowable, stable product: a map. As I detail below, I believe that the map enjoys no such ontological security and that, rather than simply accepting what a map is, we need to shift our ontological questioning to query how maps become. Second, maps, for Wood and Fels, are essentially paper based and produced by professional cartographers. While this definition does provide a platform from which to critique the nature of maps, it also produces a very limited view of maps, bounded by the strictures of Western scientific thought. As a result, the discussion largely ignores the rich literature on counter-mappings, performative mappings, map hacking and mash-ups, indigenous mapping, and postcolonial critiques of Western cartography. A thoughtful discussion on these kinds of mappings and critiques would have provided a useful alternative means to think through the nature of maps to supplement and augment their discussion regarding truth, ideology, and nature. It would also have helped break the discussion out of its narrow, conventional, Anglo-American frame.

Third, Wood and Fels have a very narrowly defined notion of Nature. While they seek to develop a more sophisticated ontological understanding of maps, they do so using a very simple ontology of Nature as a foil. For them, Nature is basically real and non-ideological; it is

the non-cultural world we inhabit – animals, vegetation, landscape, soils, weather, and so on. The result is that while maps are engaged with conceptually, Nature is dealt with descriptively. Thus, while the text seeks to challenge our conception of maps, it does little to challenge our understanding of nature, merely putting a basic descriptive taxonomy on it (essentially, it lists the Nature maps map – threatened Nature, Nature as threat, Nature as spectacle, Nature as cornucopia, Nature as tchotchke, Nature as paradigm, Nature as mystery, Nature as park). And yet Nature is presently one of the most hotly debated concepts in social sciences. The rather essentialist characterization used by Wood and Fels has been challenged by approaches such as political economy, political ecology, cultural ecology, and post-structuralism, so that theorists now discuss Nature as actant, more-than-human, post-human, hybrid natures, culture-natures, and so on. In my view, thinking through how maps produce Nature needed more conceptual work on the kind of Nature maps produced, because, just as Wood and Fels cannot accept maps as objective and truthful, neither should Nature be accepted as real and non-ideological. I accept that working two large, relational, contingent, and non-essential concepts through each other would require a great deal of conceptual thinking, but the logic of their work concerning maps would, it seems to me, to demand such a process.

Fourth, *The Natures of Maps* largely ignores technology and technological advancements in map-making and the handling and processing of spatial data. And yet, while the relationship is certainly not a purely deterministic one, mapping technologies do shape the processing of spatial data and analysis and, thus, the production and consumption of maps. The spatial data that underpin map construction are now almost universally generated (note, not *collected*) by sensing technologies such as remote sensing, GPS, LIDAR, and laser-based surveying equipment. All this information is no longer stored as lists of coordinates and lines and shades on paper maps; rather, it resides as 0s and 1s in massive relational databases, brought into life as maps by computer code running sophisticated routines and algorithms. As such, spatial data processing is undertaken by specialist software and geographic information systems that analyse and manipulate stored data and output them in a variety of geovisualizations. The maps produced are fundamentally different from traditional paper maps in a number of respects: they can be produced as a whole in an instant (as opposed to the gradual building of a paper map); they are fleeting and disposable (they can be updated, redesigned, and rejected by the click of a mouse); they are shaped by the processing power of the computer used to produce them, including automated processes affecting design and map content; and, in many cases, they are interactive and dynamic – that is, the user can query and manipulate

them, and they can be updated in real time as new data become available. The real-time distribution of such data across global networks enables the production of context-sensitive maps allied with other attribute data (as with online mapping sites, local-based services (LBS), and a variety of mash-ups) and has opened up a range of creative interventions that challenge paper-based notions of mapping and maps. In short, the radical new ways in which spatial data are now stored, manipulated, and outputted and the increasing sophistication of software tools have fundamentally changed how maps are produced and who produces them. There is little evidence that *The Natures of Maps* grapples with what new technologies mean for how we think about maps, largely, I suspect, because the idea of a map – what a map is – is thought to exist independently of how maps come to be. This seems to me a serious shortcoming that demands a different kind of ontological thought.

The Practices of Mapping

In a recent article in *Progress in Human Geography*, Martin Dodge and I propose a radical departure in ontological thinking concerning maps: a shift from ontology (how things are) to ontogenesis (how things become), or from the nature of maps to the practices of mapping. In short, we contend that maps have no ontological security but, rather, are *ontogenetic* in nature; they are not ontologically secure representations but, rather, a set of unfolding practices. We argue that

[m]aps are of-the-moment, brought into being through practices (embodied, social, technical), *always* re-made every time they are engaged with; mapping is a process of constant re-territorialization. As such, maps are transitory and fleeting, being contingent, relational and context-dependent. *Maps are practices* – they are always *mappings*; spatial practices enacted to solve relational problems (e.g., how best to create a spatial representation, how to understand a spatial distribution, how to get between A and B, and so on). (Kitchin and Dodge 2007, 5)

From this perspective, we contend that the representation shown in Figure 1 is not unquestioningly a map but, rather, is a set of points, lines, and colours that is brought into being as a map through mapping practices (an inscription in a constant state of re-inscription). As such, the map is (re)made *every time* mapping practices, such as recognizing, interpreting, translating, and communicating, are applied to the pattern of ink. These mapping practices give the map the semblance of an immutable mobile (a stable and transferable form of knowledge that allows them to be portable across space and time) and ontological security because they are learned and constantly reaffirmed. As Pickles explains,

Political Map of the World, April 2007

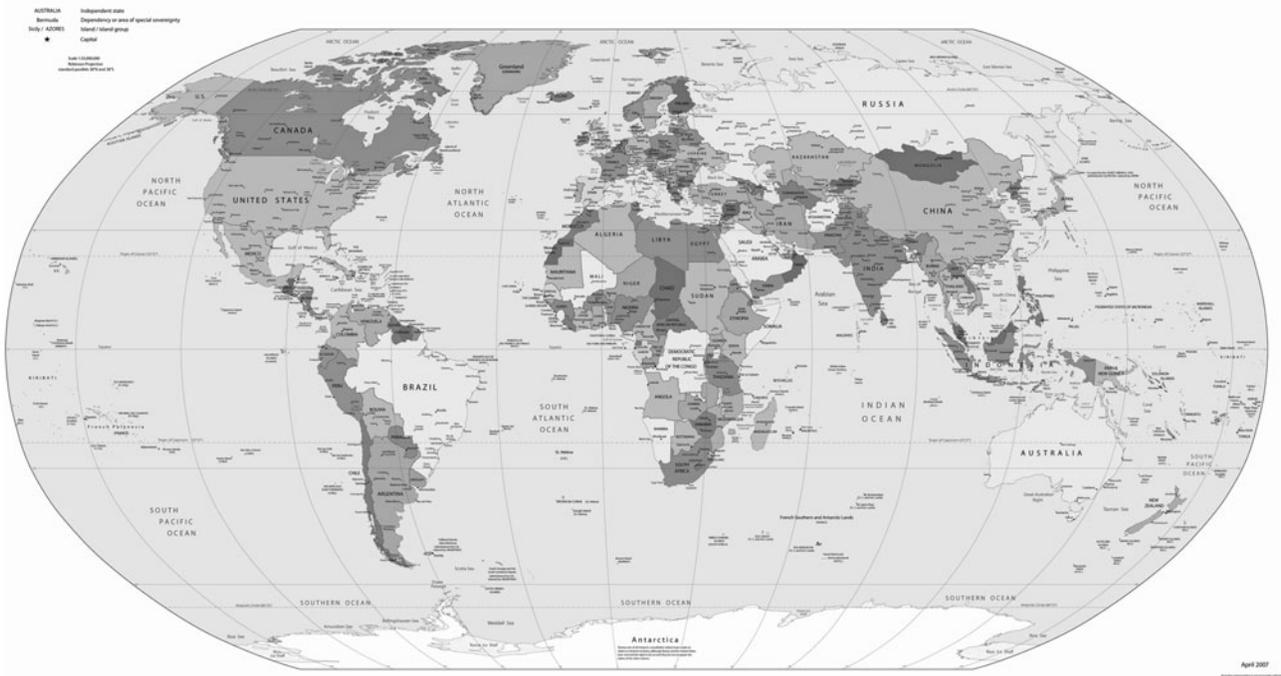


Figure 1. Political map of the world, 2007. CIA World Factbook, web version, 2007.

Maps work by naturalizing themselves by reproducing a particular sign system and at the same time treating that sign system as natural and given. But, map knowledge is never naïvely given. It has to be learned and the mapping codes and skills have to be culturally reproduced . . . The map opens a world to us through systems and codes of sedimented, acculturated knowledge. (2004, 60–61)

Maps do not, then, emerge in the same way for all individuals. Rather, they emerge in context and through a mix of creative, reflexive, playful, affective, and habitual practices, affected by the knowledge, experience, and skill of the individual to perform mappings and apply them in the world. This applies as much to map-making as to map reading. Thus, the map does not re-present the world or make the world; it is a co-constitutive production between inscription, individual, and world, a production that is constantly in motion, always seeking to appear ontologically secure. Conceiving of maps in this way reveals that they are never fully formed but emerge in process and are mutable (they are remade, as opposed to mis-made, misused, or misread).

Wood and Fels hint at this kind of thinking. For example, on page 191 they state that “it is through the simultaneous affirmation of these propositions that the territory *as such* is **brought into being**.” On page 200 they note, “eight natures . . . **each hoisting itself off the page**, taking shape in the mental spaces of cognitive linguistics as we read the map, as we unfold it, turn it over, and refold it; as we bring it closer to our eyes or move it away;

as we scale its disguises with our fingers.” On page 195, they explain that using cognitive linguistics allows them to understand “the way meaning is constructed *on the fly*, which is certainly the way we propose to understand – and model – map reading, **as a process in time**, which encourages the construction of certain kinds of meaning and ultimately behavior.” They continue,

as we read the main map and the various elements of the paramap – text, ancillary maps, title block, photo, scale bar, graph – **one or more mental spaces open up** which are structured . . . and linked under pressure from the graphic structure, context, and culture to create a network of spaces – **one space opening up after another** – through which we move as we read and make sense of the map. (195–6; italics original, bold my emphasis)

But what is clear from their analysis is that the map remains curiously static while meaning and the world unfold around it. It is territory and nature that are beckoned into being, not the map – the map remains ontologically secure at the same time that territory and nature unfold through the work of the map. And yet what Wood and Fels describe is the map in process – as a set of unfolding practices.

I tentatively agree that cognitive linguistics does offer potential for rethinking how maps are created and the work that maps do – maps are created to construct meaning and to solve spatial problems, and they do open up thinking spaces – but I am not convinced that

Table 1. Comparing different map ontologies.

Robinson	Harley	Wood and Fels	Kitchin and Dodge
Maps as truth	Maps as social constructions	Maps as constructions that produce the world	Mappings – spatial practices that do work in the world
Representation (descriptive)	Representation (descriptive)	Inscription (prescriptive)	Practices (relationally prescriptive)
Essentialist	Constructed	Constructed	Emergent
Map ontologically secure (fully formed / immutable)	Map ontologically secure (fully formed / immutable)	Map ontologically secure (fully formed / immutable; meaning mutable)	Mapping ontologically insecure (emergent and mutable)
Inherent truth, non-ideological	Inherent truth, ideology tied to subject matter, not to map	Map fully ideologically loaded	Ideology emergent, relational, and emergent with context

Wood and Fels have taken their own argument to its logical conclusion. If the world is dynamic and always coming into existence, and if map-making and map reading are processes of cognitive cartographics, then maps themselves are never static but are similarly dynamic – always being beckoned into being; always mapping.

Likewise, I believe that the notion of paramaps is useful but needs to be set within wider debates about the production of knowledge and, especially, how discursive regimes unfold in contingent and relational ways to support or contest particular discourses. Here I think we need to develop the kind of non-progressive geographical genealogies of cartography proposed by Edney (1993) and Crampton (2003), which carefully pick apart how the discursive regime of cartography itself (the contested domain of how to produce meaningful and effective maps) has unfolded and mutated at different times and places, how cartography has been employed within the service of other discursive regimes (in the present period, for example, within the regime of the “war on terror”). Table 1 summarizes what I see as the similarities and differences in our thinking, along with a comparison to Robinson and Harley.

In summary, while I think some of the ideas within *The Nature of Maps* are useful, particularly cognitive

cartographics and the paramap, I think these concepts need to be further developed within an ontogenetic framework that recognizes that the map itself is beckoned into being, and not just the work that it does in the world. Such a reworking will provide a new point of departure for radically rethinking cartography, so that, rather than exploring the nature of maps, we will be examining the practices of mapping.

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