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THE NATURES OF MAPS: Cartographic Constructions of the Natural World. By Denis Wood and John Fels. xviii and 227 pp.; maps, diagrs., ills., bibliog., index. Chicago: University of Chicago Press, 2008. $49.00 (cloth), ISBN 9780226906041.

In this beautifully illustrated and engaging volume, Denis Wood and John Fels write simultaneously about the physical world and the ways in which maps work on a semiotic and cognitive level. They begin by noting that all maps create and express meaning yet function as reference objects. Maps get away with this apparent contradiction because each cartographic sign makes a simple and powerful argument: This is there. Although the argument sounds simple, it embodies many propositions about maps and their intrinsic qualities.

First, the map is not a representation of the world. Rather, it is a selective set of assertions about the world that emanate from the arrangement of signs on a cartographic sign plane and the ancillary information necessary to present a geographical argument.

Second, signs within the cartographic sign plane fuse an inscription (a physical mark or signifier) with both a referent (the object or concept signified) and a location (*xy* coordinates). Cartographic signifiers do not have to manifest a perceptible property of their referent in order to work. A black square is just a black square, for example, except on a U.S. Geological Survey topographic map, where it signifies both a house and a specific location.

Third, cartographic signs do not stand for themselves. The "paramap" includes all ancillary elements that influence the map user's engagement with the cartographic sign plane—such as titles, legends, scales, directional indicators, projection metadata—as well as all textual and other productions that extend the map's graphic arguments. Paramap elements often accentuate scientific authority, as shown by the authors' analyses of the Peters projection controversy (pp. 9–12), the superfluous pairing of graticules with thematic maps and "cartographic posters" (p. 42), the garrulousness of U.S. Geological Survey topographic maps and legends (pp. 104–110, 208–211), and the many productions accompanying richly detailed *National Geographic* maps. A primary function of the paramap is to create and convey authority over territory (pp. 8–9).

Fourth, every map is a highly selective "field of concepts" (p. 7). Maps privilege certain objects and ideas over others, transform them into simple two-dimensional entities, and make emphatic statements about relationships through classification, symbolization, and location.

Fifth, and perhaps most important, maps are conceptual, rather than representational, in nature. The authors selectively employ principles from cognitive linguistics to argue that maps facilitate thinking, communicating, and acting by creating meaning "on the fly" (pp. 14–16). For cognitive linguists, communication unfolds within a discourse and continually prompts for the construction of meaning through general cognitive processes that emerge organically from the interaction of biological, psychological, cultural, and other factors.

Wood and Fels convincingly show that all maps, regardless of their content, share the cartographic mechanics outlined above. Maps of the natural world are no less socially constructed than are maps of a highway system or legislative districts.

Most of the volume is an exegesis of nature maps. Wood and Fels have grouped nature maps into eight arbitrary themes, whereby nature is posited as "imperiled," "dangerous," "sublime," "abundant," "possessed," "interconnected," "mysterious," and "managed." The descriptions and analyses of individual maps are exemplary and could serve as a guide for map reading in general. Map descriptions are stylistically similar to the writings of a joyful aesthetic savoring fine wine and food. In terms of analysis, the authors typically detail the dialogue between paramap elements and cartographic signs, suggest cognitive structures that generate meaning, and reveal the conceptualizations of nature portrayed on each map. Excellent discussions of evolution and natural history (pp. 36–47), continental drift (pp. 85–95), capturing nature's grandeur through different media (pp. 100–123), and the niche concept (pp. 146–160) serve to contexualize map content, highlight map selectivity, or detail the social assent of concepts posited on nature maps. *The Natures of Maps* is truly a gift to anyone interested in maps, nature, or the generation of meaning.

One could speculate about the agenda behind the author's uneven treatment of similar maps or quibble with certain assertions and interpretations. One could also comment endlessly on the many implications of this seminal study. I will briefly do a little of both.

The authors' grafting of semiotics onto cognitive linguistics successfully creates the blended space "cognitive-semiotics." In my opinion, however, the blend is only a partial one.

Most cognitive schema in the volume are generated by the interaction of paramap elements and omit the elements, frames, and other cognitive structures that form the very core of conceptual integration networks (CIN). Few cognitive schemas explicitly refer to the cartographic sign plane. Perhaps this is because the many partitions inherent in semiotic approaches, such as the divide between semantics and pragmatics or the various systems of sign typologies, simply do not exist at a cognitive level. Additional research on semiotic blending and the creation of semiotic mental spaces may provide explicit links to specific cognitive structures and processes. But which ones? Cross-cultural linguistic studies of spatial concepts support a different, though not necessarily incompatible, cognitive schema than the CIN model favored by Wood and Fels; compare S. C. Levinson's 2003 *Space in Language and Cognition* with Gilles Fauconnier and Mark Turner's 1998 "Conceptual Integration Networks" (*Cognitive Science* 22 [2]: 133–187).

Wood and Fels's concept of the paramap is a tremendous gift for those who work in the field of indigenous cartography. Oral traditions, rituals, songs, and other analogical expressions of spatial knowledge essentially function as a paramap when they are associated with a geographical inscription. In my opinion, these performative aspects of mapping extend the argument of, and guide the engagement with, the artifact in many non-Western cartographic traditions.

The authors often assert that the "this-is-there" argument is validated every time someone uses the map. Yet the lack of specific examples begs for a companion volume to *The Natures of Maps;* namely, an ethnography of map users and their acceptance, modification, or rejection of cartographers' arguments about nature. Whether map users employ the same set of cognitive processes and structures as do mapmakers remains to be seen.

In sum, *The Natures of Maps* is one of the most original and thought-provoking works to appear in quite some time. Ignore it at your own peril.—WILLIAM GUSTAV GARTNER, *University of Wisconsin-Madison*

HOW THE STATES GOT THEIR SHAPES. By MARK STEIN. xv and 332 pp.; maps, bibliog., index. New York: Smithsonian Books / HarperCollins Publishers, 2008. $22.95 (cloth), ISBN 9780061431388; $14.99 (paper), ISBN 9780061431495.

The state boundaries of the United States would seem to be a narrow, microgeographical subject. Yet Mark Stein, a film writer by trade, has created a useful gazetteer of how the curious lines that define a state's geographical personality came to historical definition. What could easily be dismissed as popular trivia achieves a scholarly weight by the accuracy of detail and the insights into the cultural dynamics of state-boundary formation.

Stein's interest in state boundaries derives from a seventh-grade fascination with why certain states have distinct configurations, especially the long tails of Idaho and Oklahoma and the box shapes of Colorado and Wyoming. Stein takes these boundaries quite seriously, investigating each segment of each state line until a complete historical portrait is constructed for every state. It also proved helpful that the author's wife, Arlene Balkansky, works for the Library of Congress and thus could provide a secure foundation in historic map sources.

The book opens with an emphatic chapter "Don't Skip This," which provides the background for the great territorial blocs of the nineteenth-century state formations of the Northwest Territory, the Louisiana Purchase, and the Mexican War acquisitions. By constantly using simple state maps and shaded screens, Stein sets a useful cartography for the detail of the ensuing state chapters to explain the framework for the basic boundaries of the Western states.

The primary focus of the book is a detailed, state-by-state boundary history from Alabama through Wyoming, including the District of Columbia, in alphabetical order. Although the sequence of chapters makes sense for a gazetteer, it disrupts the historical development of boundaries, thus requiring readers to cross-read boundary narratives between Alabama and Georgia or Alabama and Tennessee. On the other hand, cross-reading state chapters does provide a sense of discovery that a strict geographical grouping would have disguised.

From a traditional historical perspective, the immediate fascination is with the thirteen original colonies of British North America, from Massachusetts to the Carolinas. What emerges is that the present state boundaries of these historic settlements are surprisingly recent, considering their original, early-seventeenth-century charters.