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Book review

Beyond the Big Ditch: Politics, Ecology, and Infrastructure at the Panama Canal, Ashley Carse. 2014. Cambridge, MA; London: MIT Press. (£24.95 (hardback). ISBN: 9780262028110).

Ashley Carse celebrates the centennial of the Panama Canal with a book that explores the national territorial reorganization and political meanings precipitated by this vast infrastructure intervention, whose motto while under U.S. supervision was "Panama divided, the world united." Carse weaves a personal ethnographic journey through the country with its environmental and trade histories, quickly introducing what he poses are the canal's central paradoxes: the canal uses *52 million gallons of fresh water* (his italics) to move each ship that passes through it; the Canal Authority needs to protect the surrounding rainforests that provide this fresh water; and as a result, Panama needs to save one of the world's foremost shipping channels from peasant slash-and-burn farming in the hinterland. Or, as he phrases it, they must save the freighter from the machete. As the canal infrastructure is currently being expanded for more intensive use, the issues that Carse raises become all the more pressing.

Beyond the Big Ditch contributes to a growing literature over the past decade that suggests an 'infrastructure turn' in anthropology, exemplified by the work of Penny Harvey and Brian Larkin. This work employs ethnographic methodology as a way to decode the technical authority and legitimacy of large-scale infrastructure—the technopolitics—that often shrouds these projects, particularly in the consolidation of nation-state narratives. Carse focuses on water as the essential resource that maintains canal operational, and traces it from that central function back to its reservoirs—Gatun and Alajuela Lakes—up to its origin in the rainforests. The Canal Zone promotional materials proudly announce "no rainforests, no canal," and Carse collects these discursive moments to transform them into a fascinating book on this Saint-Simonian wonder.

Carse's strategy is to "shed new light on some old narratives" by framing the canal as a demanding, infrastructural organism embedded in a regional landscape. In so doing, he hopes to strip away the clothing of "treaties, legislation, and institutions" that comprise the ample literature dedicated to the canal to date (p.7). After an introduction that reviews the book's larger themes—globalization, infrastructure, territory, environment—Carse lays out the organizational map, barrowed from Bowker (1994), which turns the infrastructure "upside down" to better understand its social and environmental relationships. The resulting four parts, entitled "Headwaters," "Floodplains," "The Interior," and "Backwaters," move from the social conflict between canal water needs and local farmers, back through the expansion of the canal zone's influence to essentially a national scale, to the history of Panama's hinterland communication infrastructure development, and ending with a political ecology examination of invasive plant species that have multiplied within this highly engineered condition.

By following the water upward, one is reminded of Benton MacKaye's industrial ecological exploration with the Regional Planning Association of America (RPAA) from the 1920s, which would influence Franklin D. Roosevelt's Tennessee Valley Authority (TVA) aspirations shortly thereafter (Sussman, 1976). Carse traces the TVA influence in Panama via Colombia's Cauca Valley Corporation experience, to a series of meetings convened by Manuel Noriega in the mid-1980s for a national task force for the canal's watershed. As Carse points out, the fact that Noriega had a military environmental division demonstrates a counter-intuitive move in this unique environmental history. The seeming inversion of RPAA intentions into military strategy helps to elucidate what Keller Easterling calls infrastructure "eccentricities" (1999: p.4). Brian Larkin, on infrastructure, states, "the material qualities of these technologies are excessive, creating possibilities and setting in motion forces that cannot quite be contained" (2008: p.20). The successive blossoming of Canal Zone watershed scalar needs, particularly after 1970s U.S. forestry research declared the threat of peasant land practices, offers an important ecological contribution to that growing infrastructure literature.

Related to this point, if there is any particular weakness in the book, it is the scant attention paid to spatial and scalar conceptualization. In what is essential a negative definition in the introduction, Carse argues for an understanding of space not in the social science frames of encompassment or verticality, but rather as an "ongoing achievement… and multiple 'globals' occupying the same landscape (p.11)." The book is organized into an ecological spatial framework, and its histories suggest many rich opportunities to engage with theories of scale and space in greater detail, but unfortunately these opportunities are missed. Here Carse would have benefited from the rich contemporary work in Landscape Architecture, which explores infrastructural ecologies and the fusion of "natural" and synthetic systems, through a more sophisticated spatial analysis (Reed and Lister, 2014; Mostafavi and Doherty, 2010; Bélanger, 2009; Corner, 1999).

Nevertheless, Carse presents an ambitious work of original research that is an important cross-disciplinary contribution to the ecological politics of large-scale infrastructure projects.

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