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Brett L. Walker. *Toxic Archipelago: A History of Industrial Disease in Japan.* Seattle: University of Washington Press, 2010. xviii + 284 pp. $35.00 (cloth), ISBN 978-0-295-98954-9.

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Mutual Engineered Ecologies, Pollution, and Pain

Brett Walker explores the hybrid spaces and causations through which human health and industrial pollution are entwined in the *longue durée* of Japanese industrial and environmental history. His themes are the relationships between pain and nation, the ultimate causes of the colossal toxic pollution saturating modern Japanese landscapes, and the insults these legacies of industry inflict on porous human bodies. The excising simplification of modernization, which rationalizes and eases production, puts bodies in the way of contamination beginning at the molecular level. He handles these challenges deftly, reporting specifically on chemical insecticides for agriculture, mining of copper for export and domestic electrical infrastructure, lead and zinc mining, nitrogen fixation for fertilizers, plastics, and coal mining. His simple overriding assertion is that physical pain associated with industrial pollution emerges from intertwined ecological and technological systems. Though he treats disease well, he places emphasis, distinctively, on pain. These hybrid spaces are the channels for contamination along routes unforeseen by the engineers who made them, conduits through which industrial toxins transcend the boundaries of human bodies. Much of this is at least faintly familiar to the majority of his audience who read, write, and research in English, who know the comparative specialists' ground of radiation sickness through Hiroshima, of methyl mercury through minimata, and recently have learned more about coal mining, through the work of Walker's colleague and sometime collaborator Tim LeCain, author of *Mass Destruction.*[1] This little knowledge can be a dangerous thing, the "like, like, just like" disease which truncates undergraduate seminar discussions, and offers professors who find themselves in unfamiliar bibliographic waters the illusion of solid footing.

Walker does not allow this comfort in false analogies to linger long. Early on he introduces two contexts for the traffic of environmental toxins in Japan, both of which are deeply and specifically culturally infused: patrilocality, the key influence of Confuscian family/household in the environmental history of Japan; and microbiogeography, the links between human practices of land use, both secular and sacred, and the accessibility of human flesh, particularly the flesh of marginal groups, to molecular contaminants carried in water, air, and soil. These "co-evolutionary processes, between people and their bugs" (p. 38), carry the human partners along a path with both bright and dark sides.

Over long periods in Japan, human silk workers and silk worms have cohabited and co-evolved in circuits of influence and response. In southwest China, silkworms thrived, made resistant to the fluoride contaminants in mulberry leaves by the toxins from local brick manufacturers. This genetic mutation the worms silently carried with them, as they were migrated by purchase to the silk districts of Japan where they in turn fared well in the households of Japanese workers, a positive compounding of toxic effects and a mysterious serendipity. By contrast, there was no such felicity for humans in the spatial proximity of mosquitoes, pigs, and devout living humans. Buddhists who honored their dead by cemetery features of standing water, created a reproductive boost for the insects, and the microbes which cause encephalitis. Pigs, present as a human food source, were an amplifying host for encephalitis. Here was a mortuary rite with grave effects on human morbidity and morality. In this case, as Walker notes, "Buddism, its religious institutions and cultural sensibilities generate[d] the ecological conditions for an urban health crisis" and "modernity increase[d] exposure to risks from nature" (pp. 35-36).

Similarly he shows how organophosphates operate in hybrid spaces to cause human pain on a national scale, and how parathion was instrumental in cases of both accidental and intentional human poisonings. If pariathon

played into the vulnerabilities of depressives, cadmium worked through the aesthetics of empire, making women through an association of paleness with beauty seek a presentation of self through cosmetic practices which increased their vulnerability to disease.

Walker's close studies of the co-evolutionary partnerships between people and their bugs allow him to make a compelling case for environmental toxicity as a condition of history (p. 127) not only as Gregg Mitman (*Breathing Space*) and Michelle Murphy (*Sick Building Syndrome and the Problem of Uncertainty*) have shown through life way assemblages, which forge hybrid causations, but profoundly and viscerally at the genetic level.[2] Mutations amongst our neighburly and unneighborly insect and microbial companions make them genetically specific, which is "wonderful" and "awful" in the Elizabethan usage of the those words. So short are their generations, so swiftly do they come to viscerally embody adapations to anthropogenic challenges that they are settled into our arising civilizations before we know it. They mirror us before we are able to recognize our own reflections.

Walker is a superb historian and analyst, as his body of work, considerable for a relatively young scholar, manifests. It is in no way to diminish his accomplishment to note as he does himself (pp. 217-218), how firmly his insights are made accessible by the historically strong anthropocentric and anthropogenic elements in Japanese understandings of nature. Unlike his editor, William Cronon, Brett Walker has immersed himself in a culture whose epistemology features no conceptual space for wilderness as a place where humans are not. His convincing, compelling "from the genes up" portrait is of a living environment akin to being in Tokyo rush hour, 24/7.

Notes

[1]. Tim LeCain, *Mass Destruction: The Men and Giant Mines that Wired America and Scarred the Planet* (New Brunswick: Rutgers University Press, 2009).

[2]. Gregg Mitman, *Breathing Space: How Allergies Shape Our Lives and Landscapes* (New Haven: Yale University Press, 2007*);* Michelle Murphy, *Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers* (Durham: Duke University Press, 2006).

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