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Charles Travis, Vittorio Valentino (Eds.)

Bio-deconstructing Bioremediation: Tailings Ponds, Oil-eating Bacteria, and Microbial Agency

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Abstract

The Anthropocene is characterised by the paradox of a human agency that both creates and must respond to the rapid degradation of the environment. At the same time, certain forms of nonhuman agency display profound resilience and ability to respond to these changes. Using the case study of the Albertan oil-sands, this chapter analyses the relation between human and nonhuman agency in the discourse and practice of using microbial bioremediation to detoxify the waste products generated by this industry. These products are stored in tailings ponds now containing ~1 trillion litres of highly toxic water that must be detoxified before they can be reclaimed and host the kinds of ecologies which they have replaced. Certain microbial strains indigenous to these waste ponds that thrive on and degrade the toxic chemicals found there have driven a wave of research into isolating, engineering, and optimising these metabolic capacities for eventual reclamation of the ponds. I ask if the goal of controlling these processes, which have arisen spontaneously through the creative activities of bacteria, undermines the conditions that make this goal possible. Moving to a view of bacteria as intelligent organisms who have a fine-grained resolution of environmental conditions, and whose complex and networked activity is ontologically irreducible to the prerogatives of biotechnology, I ponder an alternate model for thinking about human-microbe relations in the goal oriented process of bioremediation.

Keywords: Oil-sands, tailings ponds, bioremediation, bio-deconstruction, naphthenic acids

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