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Max Liboiron

Pollution is Colonialism, Durham, Duke University Press, 2021, pp. 216

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Laboratory studies are a popular genre within STS. Since Latour and Woolgar’s *Laboratory Life*, a now classic ethnography of a neuroendocrinology lab in California (1979), STS has long been interested in science in the making. Following the day-to-day work of scientists, lab studies show that scientific knowledge emerges through the interactions between humans,

research infrastructures and nonhuman actors, including mediating technologies, pathogenic bacteria and experimental animals. Max Liboiron draws on this tradition but departs from it by foregrounding the relationship between scientific practices and the reproduction of colonialism. What is distinctive about Liboiron's approach is the use of autoethnographic accounts of lab life for drawing attention to the assumptions about land, nature and property in pollution science, and modeling an anticolonial methodology.

The author, who identifies as Métis/Michif and settler and uses they/them pronouns, directs Memorial University's Civic Laboratory for Environmental Action Research (CLEAR) in the island of Newfoundland, Canada. Once the ancestral homelands of Beothuk and Mi'kmaq populations, settled by Irish people working in the fisheries under British control, the province of Newfoundland and Labrador remains a fishing area where people, settlers and indigenous, are economically dependent and intimately related to cod. In this place where colonialism is ongoing and continuous, CLEAR's team develops open-source tools and protocols for monitoring plastic pollution in local water, marine animals and food webs. This means collecting fish stomachs, assessing the presence of plastics and disseminating research through publications and other means. The goal is finding out if and to what degree marine animals that were caught for food have digested plastics. Yet, what really matters is *how* this research practice is performed.

CLEAR, defined by Liboiron "a feminist anticolonial lab", produces science informed by the guiding principle that all knowledge is embodied and place-based, that is, emerging from specific relations to land. Here researchers are trained to address a set of practical questions with anti/colonial implications: how to collect, analyze, and dispose of fish guts in ways that honor the animal and the land where they came from? How to conduct non extractive research with local communities, indigenous and settlers, while remaining accountable to them? The lab is the primary case study for the book to examine pollution as central to colonial relations that see land mainly as a repository of resources and sink for waste. Vignettes from fieldwork, excerpts from the lab's protocols, and reflections from lab members are interspersed in the text. Liboiron uses them for examining "the role of science in achieving both colonialism and anticolonialism" (p. 36) and developing an anticolonial methodology as "a way of being in the world" (p. 1).

Pollution is Colonialism highlights the ambivalences of developing anticolonial practices in a settler colonial context. It considers the difficult relation between colonial science that assumes *land* as resource and sink, and Indigenous science that sees *Land* as the connections:

between material aspects some people might think of as landscapes – water, soil, air, plants, stars – and histories, spirits, events, kinships, accountabilities, and other people that aren't human. (p. 43)

These knowledge systems, writes the author, “are not monolithic and stable, but rather changing, moving, patchy, incomplete, plural and diverse” (p. 130). In discussing plastic pollution through embodied and place-based perspectives, this book contributes to the robust body of feminist and Indigenous STS, including the work of Kim TallBear (2013) and Michelle Murphy (2017). These authors, central interlocutors for Liboiron, have developed nuanced accounts of colonial legacies within technoscience and interrogated their effects on people and land.

Pollution is Colonialism comprises an introduction and three chapters complemented by unusually rich footnotes that include personal details, humorous comments and acknowledgments to the book’s many sources. The introduction outlines key concepts and useful distinctions. *Colonialism* is defined as ongoing access to indigenous land, concepts and lifeworlds “to advance settler and colonial goals, even if they are benevolent ones” (p. 26). Following Tuck and Yang (2012) *decolonizing* means the restitution of indigenous land and life rather than something that is done in university classrooms, through seminars and syllabi. Liboiron acknowledges that colonization is not one but many and that decolonial traditions in Latin America and Africa have long been struggling for the decolonization of knowledge. Yet, in settler colonial Canada, as well as the rest of North America, the indigenous decolonial project insists on claiming land back. In this sense, decolonial is not synonymous with *anticolonial*, a concept enacted through a diversity of claims and subject positions, obligations, and accountabilities. For instance, as a lab comprising settler and Indigenous researchers, CLEAR does anticolonial rather than decolonial or Indigenous science. It develops protocols for pursuing good land relations that “do not reproduce settler and colonial entitlement to Land” (p. 27).

Chapter 1, titled *Land, Nature, Resource, Property*, interrogates how notions of natural resource and property ownership underwrite modern pollution science since the early 20th century. In the 1910s, H.W. Streeter and E.B. Phelps, North American scientists working in sanitation engineering, conducted research in the Ohio River Valley, an area where the US Public Health Service had identified a water sanitation problem. They introduced a mathematical model for measuring water’s assimilative capacity, that is, the conditions and rates under which water can self-purify from pollutants. This work laid the ground for a landmark theory of pollution: nature can metabolize a certain amount of pollution before it becomes harmful. Liboiron, however, demonstrates that this pollution model naturalizes specific land relations predicated upon the appropriation and maximum use of resources. This has happened despite the scientists’ best intentions. Phelps was “a bold environmental conservationist” (p. 8) and yet he advocated for “all rivers on all lands to be governed – carefully! Precisely! – as proper sinks for pollution” (p. 9).

Chapter 2, titled *Scale, Harm, Violence, Land*, extends and complicates this critique through a discussion of the industrial chemical bisphenol A (BPA), an endocrine disrupting chemical found in plastic. It looks at scientific studies of BPA that have contested the dominant threshold theory of harm. This work, argues Liboiron, is useful for moving from the scale of harm, focusing on the action of discrete chemicals in a specific moment in time, to the scale of violence that allows to see how contaminants operate over time within industrial relations and through the interactions with other chemicals. In the case of BPA, argues Liboiron, “dominant science has provided its own critique of the hallmarks of colonial science, including autonomy, discreteness, and separation by seeing contaminants differently” (p. 97). In other words, dominant science is not a monolith but a field animated by both colonial and anticolonial impulses.

Chapter 3, titled *An Anticolonial Pollution Science*, centers CLEAR’s place-based approaches for researching plastic pollution. The lab has developed methods that are committed to good land relations and informed by Indigenous science while also drawing on dominant science. For example, CLEAR’s researchers have stopped using chemicals that require hazardous waste disposal even though this has posed problems for the study of plastic pollution in certain marine animals. They have crafted a model of community peer review that, although quite similar to traditional academic peer review, requires the inclusion of local indigenous groups and fishers in the decision-making process concerning the research objects and its dissemination. Rich in ethnographic details, this chapter addresses important questions about developing critiques of universalism while at the same time allowing anti-colonial methods to move across contexts. Liboiron asks, “How do place-based, nonuniversal methods travel? How do we take messages with us without being extractive or Resource-oriented?” (p. 37). These questions challenge STS to account for the ways in which “we always already are in L/land relations, and they come out in our methods” (p. 37).

The book troubles the (white, colonial) canon of STS by foregrounding the contribution of Indigenous and anticolonial scholarship. It denaturalizes the North American habit of identifying Indigenous authors with their tribal citizenship and authors of color as black while assuming that white and settler scholars are the neutral norm. So, in the same way that Kim TallBear’s name is followed by her tribal affiliation (Sisseton-Wahpeton Oyate), Bruno Latour’s name is followed by the term “unmarked” in parenthesis. The choice to make explicit the relation to whiteness is an invitation for authors to position themselves, clarify where they are speaking from and what structures of privilege they inhabit. This is another contribution to the STS community and beyond to become more self-reflexive in thinking about power, privilege and land relations.

Provocative and highly readable, *Pollution is Colonialism* challenges readers, specifically whites and settlers and particularly those who like to

think of themselves as supportive of Indigenous people's struggles, to consider how seemingly innocent or well-intentioned research methods, techniques, and modes of dissemination can reproduce dominant science. The book invites to question the collective land relations of which we are all part of. While it studies plastic pollution in Canada, its generative critique spans beyond North America. Reading it in Italy, as the writer of this review did, means having the chance to reflect on the legacies of the Italian and European colonial projects. It means rethinking how European colonialism has reduced land inhabited by others to waste through patterns of power and pollution that continue today. The transnational disposal of plastic and other wastes from areas of privilege to other places, is just an example of ongoing colonial relations.

It is interesting that the book's release coincides with the peak of the decolonial turn across academic disciplines and at a time when significant questions are raised about how "decolonization" has become a buzzword within the university, often used without even mentioning the vital work of Indigenous scholars and researchers from colonized groups. *Pollution is Colonialism* directs attention to the uses and misuses of decolonial, anticolonial and indigenous frameworks in academia. For example, Liboiron notes the "rampant fetishization of nonhumans as kin" (p. 110) and reads it as a form of appropriation and redemption performed by non-indigenous academics toward indigenous cosmologies. This aspect would have deserved more discussion as it also interrogates STS's focus on human and nonhuman associations. Liboiron does not delve deeply into this particular tension between Indigenous studies and STS but invites to slow down the enthusiasm for more-than-human entanglements that characterizes much of STS and, more broadly, the environmental humanities and social sciences.

Readers of Liboiron's book, particularly outside of North America, would have benefitted from further discussion about the history of CLEAR, the financial resources supporting the lab and its relation to the Canadian state and other settler colonial institutions. This would have helped to produce a better understanding of what aspects of the lab's methods can be adapted into other contexts to develop situated anticolonial science. Notwithstanding this minor point, Liboiron's contribution is of great value for STS and adjacent fields. It shows that another science is possible, but it requires disrupting the habit of assuming land as resource and sink, and experimenting with more ethical modes of being in the world and conducting research.

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Ksenia Ermoshina, Francesca Musiani

Concealing for Freedom: The Making of Encryption, Secure Messaging and Digital Liberties, Manchester, Mattering Press, 2022

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Concealing for Freedom by Knesia Ermoshina and Francesca Musiani is the first book on encryption primarily grounded in STS. It is a much-needed book, that successfully shows how the STS toolkit can advance a socio-technical understanding of encryption, unfolding several major issues that would otherwise remain unrevealed.

Encryption is certainly among those technologies that are perceived as obscure and abstruse by most of the population. Despite the tendency to classify this technology as something for tech-savvy, activists, and war reporters, in recent years there has been a rise in media interest in the issue. Of course, the Snowden 2013 revelations – with which the whistleblower Edward Snowden leaked the existence of highly classified intelligence-gathering surveillance programs run by the U.S.’s National Security Agency and the U.K.’s Government Communications Headquarters – have been a turning point for the field of encryption that started gaining popularity also beyond the specialized circles, becoming a matter of public concern. Since then, the topic has regularly sparked interest. Recently, for instance, after European Commission’s proposal to force tech companies to scan private messages protected by end-to-end encryption in search of child sexual abuse materials, several digital rights activists and watchdog organizations started to speak about the “EU war on encryption”. Similar debates occurred also concerning the necessity to have a “backdoor” to open encrypted chats to prevent terrorism. Therefore, the topic is tremendously important not only for the impact it has on the personal freedoms of users and citizens but also on social phenomena that are particularly sensitive to public opinion, such as the cases of terrorism and child abuse.

The book originates from a three-year interdisciplinary research project called *NEXTLEAP*, which ran from 2016 to 2018, with the aim of deploying communication and computation protocols for a secure, trust-worthy, and privacy-respecting Internet that could ensure citizens’ fundamental