



**Erica Cirino.** *Thicker Than Water: The Quest for Solutions to the Plastic Crisis.* Washington, DC: Island Press, 2021. 272 pp. \$28.00, cloth, ISBN 978-1-64283-137-5.

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## **Sebastian Lundsteen on Erica Cirino, *Thicker Than Water: The Quest for Solutions to the Plastic Crisis***

*Thicker Than Water: The Quest for Solutions to The Plastic Crisis*, by science journalist and artist Erica Cirino, is a comprehensive and captivating exploration of the challenges and complexities of plastic and plastic pollution. Through situated observations and encounters, Cirino draws in natural sciences, social justice perspectives, activism, industry, and institutional regulatory practices (and lack thereof) to come up with solutions to the accumulating and pervasive plastic problem. Taking the intended audience into account, the book is clear and well balanced in terms of technoscientific nomenclature, personal accounts, and observations, which, combined with mesmerizing prose, makes the book a good and easy read.

In the first part, Cirino takes us on board the boat *Christianshavn* with a team of Danish plastic pollution researchers/sailors who set sail for the most famous, or infamous, plastic assemblage, the Great Pacific Garbage Patch. Cirino utilizes her experiences on the boat to take the reader through the history of plastics, how the accumulation and its persisting properties have made plastics into one the most ambivalent materials of our time, and the complex problems researchers now face. In this way, Cirino forwards scientists' main prob-

lem: scale. Comparing the numbers given by industries and municipalities gives a loose indication of the scale of the problem. However, there is a mismatch between numbers and initial findings. Where is all the missing plastic supposed to be found at sea? (p. 23). This conundrum leads us into the micro- and nano worlds of plastics and the damage it does by offsetting the balance of oceanic ecosystems—systems that support all kinds of life, including humans. As such, scale also puts forth numerous problems, such as environmental harm on a molecular level as well as the methodological challenges of plastic pollution research on invisible or near-invisible scales.

In the book's second part, Cirino returns to land in order to investigate plastic in closer proximity to human civilization. We are invited into the laboratories of plastic pollution researchers to show the readers the pluralities of plastic, how it is not plastic in itself that is toxic but plasticizers such as BPA and phthalates and other toxins like DDT and PCBs. This is why plastic is harmful, even at the smallest micro- or nanoscale. Toxins are hitchhikers, and plastics are vessels in what researcher Kristian Syberg calls the vector effect (p. 70), meaning not only that the pollution is material-

ized as harmful in a visible and tangible way, but also that toxins are co-passengers traveling and circulating in ecosystems and end up in bodies and harming them. In this section, Cirino also gives an account of the emergence of a "plasticulture" (p. 98) as ubiquitous and all-pervasive, present in everything from car tires to air pollution.

The third part, "People and the Plastic Industry," is, in my opinion, the strongest. Here we are taken upstream to the source, adding yet another problematic dimension: the ways in which a powerful industry manages to create and sustain structures that legitimize and naturalize excessive plastic use and subsequent pollution. First, Cirino elucidates the power structures embedded in plastic production by introducing perspectives of environmental justice, a field that has shown how specific structures produce and perpetuate pollution. By tracing plastics to the producer and understanding the conditions and connections between industries and societal structures, Cirino shows that the siting of a heavily polluting plant does not happen by default. Rather, it is a specific outcome of racist, capitalist, and colonial structures, at least in the United States. Elsewhere, for instance in Turkey, it happens as a consequence of global unequal structures. Conversely, we also see how local communities and activists resist and initiate citizen science projects that function as evidence against the corporations. Furthermore, focusing on the industry enables Cirino to address how the industry produces its expertise or the ways in which some scientists are instrumentalized to serve the interests of the industry.

The last chapter, "Solutions," gives examples of how some actors are trying to solve the plastic crisis. From picking up plastic on a Hawaiian beach to individuals trying to make either (expensive) products or works of art, Cirino addresses how situated experiences with plastic waste can change our attitude to disposal. She

goes through numerous initiatives such as Zero Waste, regulatory practices, and the potential false promise of greenwashing by challenging the concept of "bio-degradable" and the many problems associated with single-use materials. This chapter comes across as the weakest, perhaps because it is titled "Solutions" and thus seemingly promises some. I find semi-vague conclusions such as "slowing down" and furthering understanding of the consequences of our actions (p. 190), or legislation and regulatory practices as answers, hardly convincing. Especially when other chapters illuminate the close connection between politics, the production of expertise, and a relentless dedication to accumulation, including among the industries that are entangled in plastic pollution, for instance, through remediation or recycling. Additionally, as historians Simone Müller and Frederick Rowe Davis have shown, a ban on one thing can lead to the rise of another—potentially more toxic—product [1].

In general, this book is a good read but seems a bit unbalanced given its heavy focus on technoscientific solutions and documentation practices. Perhaps because of my disciplinary background in the (environmental) humanities, I would have found the book more appealing had it drawn on the work of scholars in other fields studying plastics, recycling, and pollution, besides the extraordinary Rebecca Altman. Admittedly, Cirino identifies as a "science writer" rather than an academic. However, what kind of science is not defined, and the book would have been strengthened had other perspectives been incorporated. For example, one scene stood out—when a scientist assumed access to sacred indigenous lands without consideration. Picking up plastics/doing research without consent showcases the relationship between dominant forms of Western research, access, and colonialism, as argued by Max Liboiron in *Pollution Is Colonialism*. [2] Similar reflections on the role of dominant Western science would have been nice to see.

Notes

[1]. Müller, “Hidden Externalities: The Globalization of Hazardous Waste,” *Business History Review* 93, no. 1 (2019): 51–74; and Davis, *Banned: A History of Pesticides and the Science of Toxicology* (New Haven, CT: Yale University Press, 2014).

[2]. Liboiron, *Pollution Is Colonialism* (Durham, NC: Duke University Press, 2021).

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