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"TOXICITY": AN ESSAY BY SIMONE M. MÜLLER (KEYWORDS: PLANET; ANTHROPOCENE; INJUSTICE; INEQUALITY)



Toxicity, toxins, toxicants, poisons, environmental poisons – there are many everyday and scholarly expressions for a material's quality to inflict harm on the environment or a body's health. Ever escalating since the 1970s, this harmful quality today informs political discussions on doses and thresholds, toxicological distinctions between chronic and acute poisoning, environmental debates on protection and pollution, and ethical concerns over whose bodies and which generations are most affected by toxic exposure.

Toxicity is a far-ranging yet elusive concept. The materials assembled under the umbrella of toxicity appear both ubiquitous as they are foundational of ongoing cycles of extraction-consumption-disposal, and yet they often hide beneath the surface of things – in the most literal way. In an increasingly unequal world and on a planet with defined limits, the rapid growth of toxic exposures has emerged as one of the most pressing issues we face.

The contemporary character of toxicity is unthinkable without the rise of modern environmentalism in the industrial world in the 1970s and its turn against the chemical-industrial complex. Millions of people across the Northern hemisphere, from all ranges of society, ethnicities, and ages, joined together to voice their concern about the environmental crisis that was emerging at that time. At annually recurring Earth Days, they would gather in parks and schools, on city streets and in front of corporate and government office buildings. People wore flowers and gasmasks and participated in acts of civil disobedience. Activists poured oil into the reflecting pool at the headquarters of Standard Oil in California and marchers held up dead fish to illustrate the state of pollution of the Hudson River in New York City. Concern about the detrimental state of the Blue Marble had reached a worldwide consensus as never before.

Abandoning earlier notions of nature conservation, the movement's new environmental literacy came to focus on toxicity, waste, and pollution. In her seminal work *Silent Spring*, scientist and writer Rachel Carson almost single-handedly alerted people to the misuse of pesticides and herbicides, with compellingly told tales of invisible chemical poisons pervading the world and contaminating food. Similarly, the American biologist Barry Commoner warned of the carcinogenic nature of trace chemicals, dioxins, and furans in waste incinerator ashes, while photographer W. Eugene Smith shocked readers of the magazine *Life* with his photographic essay about Minemata, Japan and the crippling effects of mercury pollution. Together, these and other scientist-activists introduced people to concepts such as "acute and chronic toxicity," "parts per million," "reproductive effects," and "carcinogenicity." Chlorinated hydrocarbons or organophosphates, more commonly known by their trade names (e.g. DDT, Aldrin, Chlordane, Parathion or Malathion), became new household names.

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To this day, our perception of toxicants is fundamentally, albeit falsely, shaped by an intense media and activist focus on single contaminants (such as DDT, Glyphosate, or Bisphenol A) instead of toxic cocktails of several substances and forms of exposure accumulating over a lifetime. If we engage with the idea of toxicity solely through its presence in the media, we would overlook the fact that toxicity is not reducible to just a single toxicant contaminating particular bodies in particular places. Certain toxins may indeed be dominant, but usually there are numerous environmental poisons working together on the landscape, as well as the human and more-than-human bodies that inhabit it.

Our relationship with toxicity is also rooted in *uncertainty*. Contaminants and environmental poisons work on human and more-than-human bodies through subverting neat temporal and spatial categories like linearity, order, rhythm, location, or containment. They are so amorphous and dispersed that it makes it especially hard to pin them down in terms of causality. As a result of

these uncertainties, people no longer expected to witness immediate and acute reactions from toxic exposure. Rather, over the course of the 1970s and in parallel with the emergence of analyses of technological or ecological risk scenarios in the social sciences, "*risk*, or the *possibility of adverse effects*, displaced pollution as the watchword for the new regulatory era" (Sheila Jasanoff, 1992). Certainty of harm was no longer the prerequisite for regulation, and environmental governance agencies could restrict industrial activity even on the basis of imperfect knowledge. To some, this shift represented an important tool for greater regulatory freedom to hinder harm from toxicity prior to exposure. To others, watching institutions struggle with hundreds of pollutants that were widespread, detectable at minute concentrations, and with little empirically-validated idea of safe levels of exposure, toxicity became almost synonymous with speculation.

The focus on exposure marks toxicity as an anthropocentric concept. It is not the bubbly ocean of glowing sulphur, hydrogen and oxygen known as the Swan Nebula in the Sagittarius constellation that we connect with a toxic landscape. Rather, it is the Rio Doce in Brazil running red from mining waste; it is Bavarian forests with trees that have died due to the toxic effects of acid rain; or it is the ghost towns in districts around Chernobyl and Fukushima abandoned after nuclear disasters. Toxicity seems to exist only in its relationship to humans as we seek to understand, regulate, and inhibit possible detrimental effects of foreign substances working upon ourselves and our offspring.



Toxicity affects different bodies to different degrees, and consequently it is a term that cannot be disentangled from notions of power, as well as geographies of inequality and injustice. In fact, exposure to toxicants is always racialised, classed, and gendered. In 1982, the emerging environmental justice movement in the United States coined the term "environmental racism" to denote how contamination disproportionately exerted a slow and often unspectacular violence against humans at lower socio-economic levels. At the time, activists were campaigning against

the dumping of polychlorinated biphenyl waste in a landfill in Warren County, North Carolina, a predominantly African-American community. Civil rights advocates saw environmental racism as a result of poverty and segregation that had relegated many African Americans and other ethnic minorities to some of the most industrialized or dilapidated environments of the United States. Today, the term is invoked when discussing disproportionately high rates of cancer in primarily black communities along the highly industrialised Gulf of Mexico (also dubbed Cancer Alley) or in the context of Flint, Michigan's water crisis.

From the United States, notions of environmental justice spread around the world, marking, for instance, how in (post)colonial settings Indigenous communities were – and still are – disproportionately affected by toxic exposure. The *Environmental Justice Atlas* combines 3600 different cases from all over the globe, ranging from an Aboriginal community in Armidale, Australia, forced to live on the site of a former waste dump, to the people in the Eloor-Edayar region of India who live surrounded by chemical industries pouring more than 30 effluent pipes into their river, to farm workers from the Ivory Coast who have sued manufacturers and distributors of the pesticide DBCP for genocide and crimes against humanity.

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Structural inequalities permit some bodies to remain vulnerable to toxic exposure while others are seemingly untouched. Many industrial countries have outsourced the exploitation of land, labour, and resources to spaces outside their borders, taking their polluting industries to countries with the least regulated environmental and health regimes – generally those in the Global South where economic growth is pitted against environmental protection. Today, e-waste and plastics are sent from Europe to West Africa, from the U.S. to South-East Asia. Raw earth metals are scraped from African mines under the most environmentally damaging, and often inhuman, conditions, and large tracts of land in Latin America are eroded by the use of pesticides to produce food solely for export. The coexistence of different national treatments of toxicity has legitimized different valuations of human life.

The trouble with toxicity is its ubiquity. Our species' excessive and expanding modes of extraction, production, and disposal, which appear necessary to support perpetual economic growth, have fostered toxicity's omnipresence in our air, water, and soil.

Every year, humans emit more than 250 billion metric tons of chemical substances, feeding a toxic avalanche that has been harming human and more-than-human life across the planet since the dawn of the Industrial Revolution. At ever accelerating speeds, human activity has caused the contamination and pollution of our planet to such a degree that Francois Jarrige and Thomas Le Roux recently called contaminants "constituent elements of modernity" (*The Contamination of the Earth*, 2021).

The sheer range of synthetic chemicals introduced to control almost all aspects of life has also been increasing: from pesticides to control ecosystems, to synthetic drugs to control the (female) human body, to chemical weapons to facilitate military warfare. After World War II, governments around the world started planning for World War III, pouring funds into environmental science in their search for ways to harness natural processes to kill millions of people.

Finally, the growing amount of waste – with more than 400 million metric tons of hazardous waste generated annually worldwide today – illustrates another source of the increasing contamination of our planet. We live in an age when our common-pool resources have become increasingly toxic and the experience of toxic exposure has become – while unequal – increasingly common.

We live in an age of the “toxic commons.”

I have no toxic biography – at least at first glance. Technically, I am part of a privileged, white, and Western generation that has fully benefited from the changes that modern environmentalism has brought about for my part of the world. Yet, assuming that my body is typical of those in twenty-first century Europe, it contains about 400 different foreign chemicals. In 1970, this figure was 60. I have picked up these alien, human-made substances from environmental exposure through the air I breathe, the water I drink, and the fruits I eat. Today, in the age of the toxic commons, not one of us, not even the environmentally privileged ones like me, remains unaffected by toxicants.

At the same time, I want to refrain from lumping all of humanity into one. “We” is a notion to be invoked carefully in the context of speaking about toxicity on a planetary scale, given the intricate entanglements of toxic substances with geographies of inequality and racism. Living with the toxic commons is, in the words of Michelle Murphy, a “condition that is shared, but unevenly so, and which *divides us as much as binds us*.” This raises the question of how “we” – invoking a paradoxical we – could live well and with care on our permanently polluted planet while mindful of an increasingly unequal and unjust world built upon centuries of colonial exploitation and racial differentiation.

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This conundrum is not easy to resolve as it involves working with the very tension that comes from toxicity’s equally binding and dividing qualities for human life. However, humanity has grown ever more accustomed to a moral landscape strewn with ambivalence. Ambivalences are as foundational to modernity as contaminants. This means that while engaging with the plurality of human histories and responsibilities in the build-up of today’s contaminated world, we can – and must – acknowledge the equality of all humankind as the baseline for any environmental

protection or toxic remediation work. Global environmental justice movements had already picked up on this in the 2000s when they changed their war cry from NIMBY (not in my backyard) to NIABY (not in *anybody's* backyard). A next step would be for governments in industrial countries to acknowledge that their environmental protection laws need not cease to wield power beyond the boundaries of their territory. Toxicity has always been an issue with a global dimension, and environmental racism and toxic commonality must be understood as two sides of the same coin.

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