

Critical Theory for the Anthropocene Future

INTRODUCTION BY GARANCE MALIVEL

How might critical theorists disrupt the universalizing understanding of “humanity” manifested in mainstream conceptualizations of the “Anthropocene”—the proposed denomination for a geological era in which human activity has become the main agent of environmental change? When will policy-makers reckon with the interlocking systems of inequality and oppression embedded in the production and distribution of environmental harms? How could critical theory be incorporated within existing legal and scientific infrastructures? These are some of the questions raised during the Critical Theory for the Anthropocene Future conference, held on June 6, 2018 at the Gladstone Hotel in Toronto, Canada. Convened by Dayna Nadine Scott, York Research Chair in Environmental Law and Justice in the Green Economy, in collaboration with Sonia Lawrence, Director of the Institute for Feminist Legal Studies at Osgoode Hall Law School, the event offered to explore a range of epistemological and legal tools to work toward socially and environmentally just futures. Drawn from the presentations of the four feminist scholars invited for this conversation, the following contributions address prospects and challenges that come along with efforts to conceptualize alternative environmental governance models.

Present through a video recording, Métis researcher Zoe Todd elaborated on the Cree legal principle of *wahkohtowin*, which describes the fundamental interconnectedness of all living and nonliving beings. Todd shared with the audience a reading of her poem “Tenderness Manifesto” [not



(L to R) Sonia Lawrence, Dayna Nadine Scott, Usha Natarajan, Michelle Murphy, Angela P. Harris. Photograph by Graham Reeder.

included in this volume, but available at zoestodd.com/tenderness-manifesto/], which outlines what an ethics of kindness and reciprocity might feel like. Legal scholar Angela P. Harris followed with an investigation on the commonalities between “x” justice movements (environmental justice, reproductive justice, food justice, et cetera) and on possible ways to model decolonial futures in a society governed by white settler law. Usha Natarajan went on to question the effectiveness of the liberal legal system in tackling environmental changes when its building blocks—sovereign states—have been founded on the premise of “master[ing] nature” (44, this volume). Closing the presentations, Métis scholar Michelle Murphy presented the work of the Technoscience Research Unit on the intersecting forms of colonial violence perpetrated by the Imperial Oil refinery in Sarnia, Ontar-

io. Highlighting how this violence has been manifested through territorial dispossession, but also through the ways in which industrial chemicals have been studied and enabled in the airsheds and bodily systems of fenceline communities, Murphy offered insights on possible paths toward decolonial sciences and regulatory infrastructures.

We are deeply grateful to the authors for allowing us to share their reflections with a broader audience, and to *UnderCurrents'* editorial team for offering to publish them in this timely volume bridging past and future modes of living and relating. Grounded on the principles of inter-national, inter-species, and inter-generational equity, the following essays ultimately remind us of our responsibilities towards those we have shared and will continue to share this world with.

The Politics of the [x]

ANGELA P. HARRIS

For the last few years, I've been fascinated with the emergence of North American social movements that label themselves with the word "justice." The best known are probably "environmental justice" and "reproductive justice," but there is also "food justice," "water justice," "energy justice," and "land justice," among others. In an article in the *Canadian Journal of Women and the Law*, I describe these movements collectively as "[x] justice movements," and I argue that they share commitments to undermining some of the central projects of white settler law.

When I started this project, I called these movements "[x] justice movements" as a shorthand for their common self-designation. But, as I've thought further about what they're doing, I've begun to engage with a different usage of the [x]: a willing embrace of the unknown. I'll say something first about the theoretical re-designation of the [x], and then I'll say something about what I see as the possibilities of [x] justice movements from this perspective.

The politics of the [x]

Paola Bacchetta observes that theorists and activists who embrace the concept of "interlocking oppressions" often mark their commitment with an embarrassed or glib reference to "race, gender, class, sexuality, disability, etc." Bacchetta wants to take the indeterminacy of this list seriously—as a recognition not only that a full account of the identities made invisible or excluded by existing relations of power would be unwieldy, but that such an account is likely impossible: (1) because, at the psychic level, relations of power shape our own capacity to think and act so that we are always only partially visible to ourselves; (2) because, at the social level, our intentions and actions in the world change that world so that new identities become possible; and (3) because, at the physical level, we live in a quantum uni-

verse that is fundamentally creative, indeterminate, and not fully legible to us.

In February 2002, Donald Rumsfeld, who was the United States Secretary of Defense, stated at a Department of Defense briefing: "[t]here are known knowns, there are things we know we know. We also know there are known unknowns, that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know" (see "RUMSFELD / KNOWNNS").

Everyone had fun of him at the time, but he was onto something. Bacchetta uses the idea of levels of the unknown to incorporate uncertainty, futurity, and humility into critical theory. She proposes that we replace the embarrassed "etc." ("race, gender, class, sexuality, disability, etc.") with theoretical terms that deliberately accept our limited understanding of how power and subjection interact. The new terms she seeks to introduce are "et cetera" (written out rather than as an abbreviation) and "x." Here is how she describes the project:

While the etc., et cetera and the x all signal an outside to the analytic, the etc. only acknowledges a fraction of the relations of power that potentially comprise the et cetera and the x. The et cetera and the x can go where the etc. cannot venture. The etc. represents known relations of power, while the et cetera denotes both the known and unknown-knowable, and the x both the unknown-knowable and the unknown-unknowable. The et cetera, then, is about absent-presences while the x is about absent-absences.

White settler law and operations of power

In my article, I argue that white settler law—liberal law as it operates in white settler societies like the United States and Canada—operates through

at least two distinct modes of power. I won't go into too much detail about them here, but the modes I identify are *subjection* and *spatialization*. By subjection, I mean the law's participation in creating subjects that are recognized before the law in the first place, and also the law's participation in differentiating those subjects: designating some as full subjects, others as defective or dependent subjects, and others as non-subjects. I'm using "subjection" roughly in the Foucauldian sense. For example, think about corporations, states, persons, wild animals, farmed animals, women, Indigenous Peoples, racialized minorities, and children. These are identities partially authorized by law and given different powers under law.

By spatialization, I mean the law's role in creating material spaces through invisible borders and boundaries—spaces like "Canada," "the United States," "the ghetto," "the wilderness," "Indian country." I also mean the law's role in creating conceptual spaces—like "the private sphere," "the public sphere," "the market," and "the state." Subjection and spatialization work together to create and stabilize relations of power in white settler societies.

What I find interesting and hopeful is that [x] justice movements work to undermine both of these dynamics, making space for anti-colonial and perhaps de-colonial futures. I argue that [x] justice movements share three basic commitments: (1) a commitment to "justice" that explicitly calls attention to the limits of existing law; (2) a commitment to acknowledging interlocking systems of oppression, instead of embracing single-axis identity analysis; and (3) a commitment to a "politics of life," which transgresses conventional conceptual spatial boundaries.

First and foremost, [x] justice movements refuse the limits of law. Lawyers working for environmental justice, for instance, acknowledge the need to put lawyers "on tap, not on top." And other [x] justice movements similarly seek a transformation in relations of power, not liberty or equality as defined by law. Second, [x] justice movements begin with "the etc." but, I would

argue, make room for the et cetera and the [x]. Here, for instance, are the words of one reproductive justice website:

Reproductive justice is in essence an intersectional theory emerging from the experiences of women of color whose multiple communities experience a complex set of reproductive oppressions. It is based on the understanding that the impacts of race, class, gender and sexual identity oppressions are not additive but integrative, producing this paradigm of interlocking oppressions. For each individual and each community, the effects will be different, but they share some of the basic characteristics of interlocking oppressions — universality, simultaneity and interdependence. (#Trust Black Women)

Giovanna di Chiro argues that [x] justice advocacy is moving beyond this conventional “etc.” politics of interlocking oppressions into a broader understanding of subjection beyond a specified list of identities. She notes that, working together, some environmental justice and reproductive justice organizations in the United States now understand their struggles not so much in terms of individual human rights, but as “about fighting for and ensuring social reproduction” (Di Chiro 285). If we, like Di Chiro, define social reproduction as “the intersecting complex of political-economic, socio-cultural, and material-environmental processes required to maintain everyday life and to sustain human cultures and communities on a daily basis and intergenerationally” (281), we move from the “etc.” to the et cetera.

If we look more deeply into the material-environmental processes required to maintain everyday human life, we begin to open to the [x]. As scientists are pointing out, “human” and “life” are both terms that are increas-

ingly dissolving as known knowns, and as we open to the uncertainty of the future, the et cetera becomes the [x].

Another example comes from climate justice work. As Kyle Whyte notes, for Indigenous Peoples climate justice work is intertwined with “the systems of responsibilities their community members self-consciously rely on for living lives closely connected to the earth and its many living, nonliving, and spiritual beings, like animal species and sacred places, and interconnected collectives, like forests and water systems” (600). Accordingly, Indigenous Peoples are designing and leading movements to protect the rights of living systems such as rivers and forests. In this way, [x] justice movements begin to undermine the subjection dynamics of white settler law, disrupting the known subject of “the human.”

[X] justice movements begin to undermine the spatialization dynamics of white settler law as well. Here, the example I’ll give has to do with conceptual spatialization. Eric Holt-Gimenez and Justine Williams write:

The challenge for land justice is not just how to confront the issues of concentrated private property and the financialization of agricultural land, or how to forge an agroecologically sound and economically equitable form of agriculture, but how to confront capitalism. Our skewed system of land tenure reflects a regressive political-economic system, itself embedded in a continuing legacy of dispossession, concentration and exploitation. (259)

The radical wing of the food justice movement similarly calls our existing food system “broken” and calls for new political economies of food built from the ground up, instead of the top down, requiring a disruption of capitalism. Water justice calls for the de-commodi-

fication of water. Maxine Burkett, writing on climate justice, notes:

[T]he climate movement does not purport to be an environmental one. It aspires to be much more than an attempt to legislate to correct a discrete environmental harm. It seeks to correct a deeper harm that disparately dismantles livelihoods as a result of a changing climate, and to introduce a different kind of political economy. (17)

In attempting to dismantle capitalism itself, [x] justice movements self-consciously adopt a politics of the [x], not only the et cetera but a commitment to unknown unknowns. This is a politics that ruptures the fundamental liberal borderline between “the state” and “the market,” calling for forms of governance and types of spaces that we can’t as yet imagine.

Conclusion

The first of the 17 principles of environmental justice adopted at the 1991 People of Color Environmental Leadership Summit in Washington, D.C., provides that: “Environmental Justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.” To work for this objective is an anti-colonial project; to achieve it would be a decolonial project.

The politics of the [x] envisions a decolonized world. [X] justice movements posit the existence of a freedom that, in Alexander Weheliye’s words, “most definitely cannot be reduced to mere recognition based on the alleviation of injury or redressed by the laws of the liberal state . . . [S]aid freedom might lead to other forms of emancipation, which can be imagined but not (yet) described” (15).

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Law & Critique: Hubris in a Time of Environmental Change

USHA NATARAJAN

Thank you to Dayna Scott and Sonia Lawrence for this event. It is an honour and pleasure to have the opportunity to engage with and learn from my fellow panelists. I will elaborate on some of the themes raised by Angela Harris about producing knowledge with humility. I want to think about why it is so hard for lawyers, particularly international lawyers (and I include myself in this group) to produce knowledge in such a way.

Before getting to "Critical Theory for the Future," I begin with some background about myself and my discipline. I am an international lawyer. My interest in international law and understanding of it are shaped by where I come from. I was born in India and became an Australian citizen when I was a teenager. My interest in international law began after moving to Australia because I wanted to understand the disparities of power and wealth between the so-called First and Third Worlds, and international law seemed the appropriate field to grapple with questions of global injustice.

I was drawn to various critical movements within law that explained the discrepancy between the promises of equality that are repeatedly reiterated and inscribed within international law, and the increasingly unequal world we live in. Specifically, I was drawn to "TWAIL" or "Third World Approaches to International Law," which is a postcolonial movement that unpacks the ongoing colonial legacies of international law, and demands decolonization and inclusiveness.

In Australia, law is an undergraduate degree and, while I was studying law, I undertook a parallel undergraduate degree in the history of art. The juxtaposition of these two fields of study was an apt illustration, very early on, that in law we are dealing with a deeply conservative discipline. Critical theory enters law slower and later than it does other fields, such as art history, literature, and so on—sometimes with a gap of many decades, with postcolonialism being just one example. It is from this background that I ponder the future of critical theory within law. Without question, the central challenge is how critical legal theory responds to environmental change.

The international law response to environmental degradation is a specialization called international environmental law. It is a high-growth specialization. Commencing in the 1970s, it now consists of an increasing number of treaties, international organizations, research centres, funds, textbooks, graduate degree programs, courses, and so on—all the accoutrements of a successful legal specialization that has staked out its space and is busy putting down roots and putting up shoots.

The initial response of critical international lawyers to international environmental law was interesting. For many decades, international lawyers in the global South—whether critical or mainstream—were largely united on the environmental issue. Both critical and mainstream international lawyers from the South emphasized that environmental problems were caused for

the most part by the global North and hence the global North should shoulder the bulk of the burden of fixing these problems. Additionally, as the global North had enriched itself through environmental destruction, the global North also had much greater capacity to shoulder the burden compared with the impoverished global South. Critical legal scholars in the global North rarely engaged with the environmental question at all but, on the rare occasions when they did, they largely supported the stance of Southern scholars.

With Southern lawyers engaged in the international environmental law project, legal principles reflecting the Southern position were successfully proclaimed within international environmental law, such as an acknowledgment of our common but differentiated responsibility for the global environment. The legal concept of sustainable development also incorporated an understanding that those who cause environmental harm and those with the greatest capacity to mitigate it should take the lead. These ideas were incorporated in various ways within treaties, the best-known example being the Kyoto Protocol.

However, these principles and ideas have been to no avail. In each of the environmental issues that international law has tackled—climate change, biodiversity preservation, combating desertification and deforestation, fighting pollution in the air, water, and earth—we have failed. Each of these problems is worse now than before the advent of international environmental law. Yet international environmental law has grown in leaps and bounds and will continue to do so.

In light of this state of affairs, what is the response of critics today? Have they changed their stance? For some, not much has changed. Some scholars,

especially those from the postcolonial school, point to the obvious: the North refused to live up to its legal obligations, and thus we have failed to stem environmental degradation. While this is true to a certain extent, and we should certainly continue to say so, past experience indicates that this critique by itself has proven neither tactical nor helpful in combatting environmental degradation.

Other critics within international law refuse to engage with environmental questions altogether; they see the proliferation of international environmental law as part of the reproduction of longstanding structures of economic, political, and social violence and see no tactical value in engaging with this particular manifestation. They particularly resist the mainstream's obsessive focus on climate change, insisting that it is a distraction from broader underlying inequities.

Many of these critical stances are reiterated in the pushback against the term "Anthropocene," and it is very understandable. In a world where New York emits more greenhouse gases than the whole of sub-Saharan Africa, any claims about humanity as a whole—our agency and power as a species—are nonsense, especially when sub-Saharan Africa—human and non-human—feels the unmitigated brunt of climate change at an exponentially greater degree than those who caused it.

I can understand this stance. I have studied inequality all my life, starting with the laws of war, then looking at trade, economic, and investment law. But I have never seen greater inequity and injustice than that being wreaked by climate change. We see it everywhere, but I take an example from my own region, North Africa, where I have lived and worked since 2010. We are the most water-scarce region in the world; the most import-dependent for food; our political problems are well known due to the ongoing Arab uprisings; and we are unsurprisingly unable to cope

with fast-moving changes in the deserts, and deltas, and the large tracts of land that are fast becoming uninhabitable. The last drought in Somalia displaced 4,000,000 people, and 100,000 people died, mostly women and children. How can Somalia, the subject of relentless international interventions for every other conceivable reason, be expected to cope with longer and more severe droughts alone—a situation that it did not cause and has no means of preventing?

So, I too share the concerns and frustrations that characterize existing critiques. *But much more needs to be said.* Environmental change requires more than our long-standing demands for fairness and redistribution. Environmental change forces a more fundamental change in our ways of knowing the world. While questions of redistribution remain relevant, even revolution and radical redistribution of power and wealth will not provide a solution to environmental change without a revolution in thought. Today, it is possible that a revolutionary condition is looming and a force beyond our timeless socioeconomic conflict is a driving element. It is likely that natural contingencies will arise faster than humankind's ability to negate systemic collapse. So, the revolution may be ready for us, but we may not be ready for the revolution.

For lawyers, environmental change provokes a rethinking of what law is, given the significant role of law in creating the difficulties that we face today. As it stands today, the concepts that law is built on are wedded to environmental destruction. The basic building block of international law—the sovereign state—must master nature and submit it to the task of infinite economic productivity. Societies that do not do this will not be sovereign. A world of sovereign states is further atomized into a world of individuals possessing human rights. Legal doctrines such as sovereignty and human rights are examples of the many ways in which societies and individu-

als have become abstracted from their natural environments. Scientifically and spiritually, we know that we cannot exist without the non-human entities that enable us to breathe, grow, and live. We are inseparable from all of nature in life and in death. Yet, notions such as human rights assert a clear demarcation of our species from all others. Notions such as sovereignty assert our mastery of nature even in the face of our diametrically opposite experience: our inability to stem the sixth mass extinction, or the changing climate, or the spread of deserts and decimation of forests, or the pollution of the soil, water, and air. Similar critiques can be levelled at other fundamental legal concepts such as territory, jurisdiction, and legal personality, to name but a few, all of which have underlying assumptions about the natural environment that are harmful, destructive, and inaccurate.

Disciplines such as law and economics—indeed most knowledge production in the Enlightenment era, critical or otherwise—take for granted the underlying stability of natural systems. However, this is no longer the case. The development patterns of the rich have destabilized natural systems. So, at the very least, we have to contend with whether our understandings of development and progress are mistaken; whether the directionality and hierarchy that give meaning to the developed and developing dichotomy are misguided; and whether we have something to learn from the human and non-human cultures that have proved less destructive than our own.

If the central tenets of international law destroy the environment, reinvention of the discipline could start with acknowledging that the environment—or nature—is not an object that we can cast the net of our knowledge or critique over. On the contrary, it is what encompasses, surrounds, and regulates us; keeps us alive, breathing, growing, and learning. It has laws of its own from which we can learn if we listen.

Chemical Futures and Environmental Data Justice

MICHELLE MURPHY

I am an urban Métis from Winnipeg, I have been living in Toronto for 17 years, and my family is both white and Métis, so I am really obsessed with complicities in relation to colonialism and to the project of understanding whiteness in all its forms, when it becomes so intimately part of our lives. We can draw our attention to intimate complicities of many forms: we can think of our relations, or the ways that cellphones are part of our lives, or the ways that chemicals are part of our bodies. Our lives, and the ways that chemicals are part of our bodies, are some of the ways that colonialism makes us. My work thinks about technoscience and how we might dismantle whiteness.

The work that I will be sharing with you is part of an emerging, exciting field called Indigenous Technoscience Studies. And tomorrow I will be flying out to Edmonton, where we will be having an Indigenous Technoscience Studies conference to build a network around this here in Canada. Some of my inspirations are fabulous Métis technoscience folks, including Zoe Todd, who you have just heard from; there are also wonderful people doing great work in and outside of universities—Max Liboiron, Erin Marie Koons, Elizabeth LaPensée. My work is happening inside the Technoscience Research Unit, a lab we opened up about a year ago at the University of Toronto. We are trying to do something different, to imagine what would a lab that does decolonial technoscience look like; what would a lab that brings BIPOC, LGBTQ2S people together to research white technoscience look like. What we are trying to build, a lot of the time, is the lab itself: how our lab is even going to work, how we are going to come together to define our protocols, how we can make a space inside this university that works differently.

What I will be talking about today concerns the question of how environmental data manifests settler colonial-

ism and racial capitalism. What are some ways of working with and against data towards better land/body relations? We will see how this connects to the question of being with and against the "Anthropocene"—which is what the strikethrough [in the event title, Critical Theory for the ~~Anthropocene~~ Future] means to me. We are both thinking with this word and knowing that it is not the right way to go.

The project that our Technoscience Research Unit lab is working on right now is called "Visualizing Colonial Violence: Imperial Oil." It is about the Imperial Oil refinery in Sarnia, Ontario, which is among the oldest in North America. I am part of a team who I am learning from: Kristen Bos, our Lab Manager, who is Métis; Vanessa Gray, from Aamjiwnaang First Nation, an incredibly fierce land protector; Rena Shadaan, who does amazing work on nail salons and environmental justice; and Ladan Siad who works on BIPOC people and data justice in the city. I could not be luckier than to work with these people.

I want to start with this bit of footage (see "Sarnia Fire," <https://www.youtube.com/watch?v=uQjFNrLXHfk>); this is February 23, 2017. You might wonder what we are looking at, and maybe some of you saw this on Facebook. This is the Sarnia Imperial Oil refinery on fire, in Chemical Valley, on the St. Clair River, which runs from Lake Huron down to Lake Erie. We are looking at it from the U.S. side. The footage has been taken from someone's smartphone. This is where 40% of Canada's petrochemicals are refined. Imperial Oil celebrates this refinery as one of their most "integrated" fuel, chemical, manufacturing, and petroleum research centers. It produces 120,000 barrels of oil a day. So, what are we looking at? Are we just seeing a visualization of colonial violence and environmental violence? Are we looking at the harms that people who live prox-

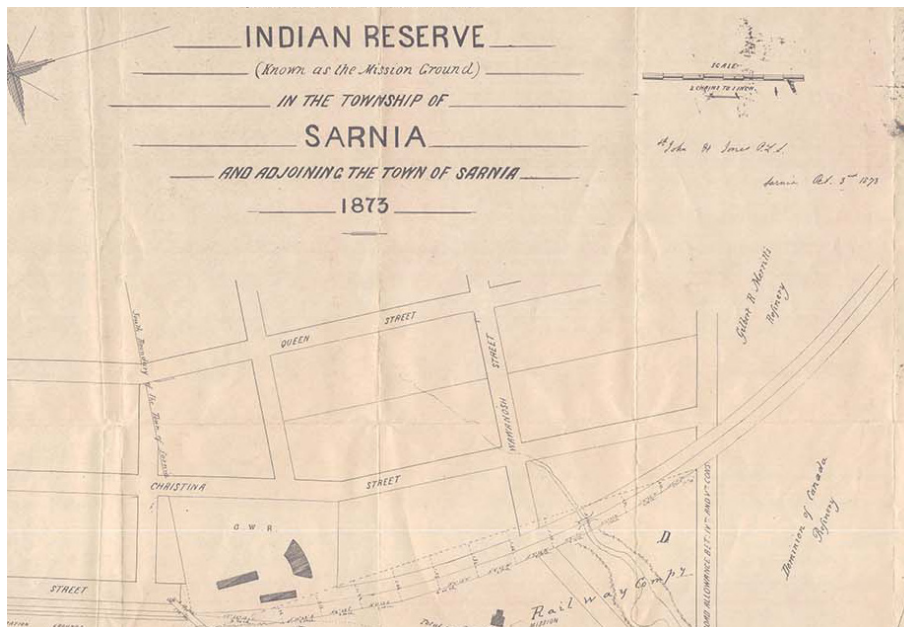
imate to this refinery are going to have to bear into the future?

This is what Imperial Oil said: "nothing is happening. There is a small grass fire; it was put out. No emissions, no injuries." You are probably familiar with this kind of corporate doublespeak and denial. Can we trust our senses? What were we witnessing? How can we find out? Imperial Oil is only required by law to give these little tweet-sized bits of information that you have to subscribe to in order to keep informed about the ongoing spills and accidents that happen in Chemical Valley. These reports come in a steady stream. We know that there is some fence line monitoring of six chemicals. I am thinking of this as a kind of gaslighting, and maybe some other people have seen the resurgence of gaslighting since the election of Donald Trump. Gaslighting is a form of abuse that manipulates people into doubting their own memory, their own perception, their own reality, their own sanity. "No emissions here, nothing is happening!" "Small grass fire put out"—denying the evidence that is right in front of you. Compliments tangled with lies. We can think of the subtle ways in which we probably all experience this in the university. But there is also this other, very violent kind of gaslighting and form of abuse. We have two great gaslighters: Trump and Trudeau.

Vanessa Gray and Ecojustice, the NGO, have been pursuing a legal complaint with the Ontario Ministry of Environment, trying to find out what happened with that flare. They are trying to get the actual information and data—that is still ongoing. I am thinking about gaslighting not just as something that is about interpersonal abuse, but as something that is infrastructural. It is baked into our data and the system that produces data. It is baked into the system that makes it possible to say "nothing is happening here!" when we all can see and feel that violence. We know that this is gaslighting because Imperial Oil is one of sixty refineries that has a steady stream of petrochemical violence in Chemical Valley. Aamjiwnaang First Nation, one could say, is surrounded by Chemical Valley, but it is more accurate to say that Chemical

Valley interrupts the sovereign territory of Aamjiwnaang. We have been doing research, looking into the archives of how the Indian Affairs office was part of taking the land and making it into Chemical Valley. Why is Chemical Valley there? It is because this area had some of the first commercial oil wells in all of North America, and this was thus called Canada's Oil Lands. The Imperial Oil refinery was built in 1871 and then bought by Standard Oil in 1897. So Chemical Valley, in a way, was built up around Imperial Oil; it is a kind of starter company. It was celebrated on Canada's \$10 bill in the 1980s, as well as on a coin. Imperial Oil is crucial to the way that Canada's settler state imagines what it does, and this is part of these infrastructures of gaslighting that I am trying to think against and call out.

We can say that pollution and the materiality of pollution is a kind of colonialism, but we can also say that this permission-to-pollute state that is Canada is also colonialism. This is what we tried to argue in a collaboratively written pamphlet, "Pollution is Colonialism" (Liboiron), which Dayna Scott was part of. Gaslighting is essential to settler colonialism. We can think about the Doctrine of Discovery and Terra Nullius—the logic of elimination and erasure that is the legal foundation of settler colonialism—as a gigantic gaslighting project: "No one is here." Racial gaslighting is really a crucial part of how white supremacy works in North America, on Turtle Island. More than this, as a science and technology studies scholar, I show how this gaslighting is *in* our science; it is in the way that experiments are set up; in the way that we study how chemicals affect life. We study one mouse in a box, one chemical at a time, looking at a chemical and a particular duration, looking for specific regular effects. Technical details are part of this erasure project. The dose-response curve that only looks at how chemicals affect things as they increase in dose: that is an erasure project too. It is a gaslighting project that erases all the kinds of low-level exposure harms that exist. When it comes to cancer, there is no safe threshold. When we think about endocrine-disrupting chemicals, this



This 1873 survey map by the Canadian Department of the Interior shows the area that will later become Ontario's Chemical Valley. On the map one can see the recognition of Aamjiwnaang First Nation territory, here marked as "Indian Reserve"; the presence of the Dominion of Canada Refinery, which will become the Imperial Oil Refinery, now the oldest running refinery in North America; as well as indications of the "Indian Mission," which will also later become land beneath today's Imperial Oil Refinery. Map from Library and Archives Canada / Department of Indian Affairs and Northern Development fonds ("Plan of part of the Sarnia Indian Reserve known as the Mission Ground, sold to the Great Western Railway Company. / John H. Jones, P.L.S"; item ID number 2148459; reproduction of image found at <http://central.bac-lac.gc.ca/re-direct?app=fonandcol&id=2148459&lang=eng>).

idea of a dose-response curve is gaslighting. Gaslighting is in science, and it is in the state and corporate forms of monitoring.

The National Pollutant Release Inventory (NPRI)—the U.S. equivalent of the Canadian Toxic Release Inventory—is a governance system where all the refineries, factories, and pipelines are supposed to report their annual emissions. We turn to this, as environmental justice folks, and we can show how the concentrations of those emissions are clustered around communities of colour, poor communities, and Indigenous communities. We use this data to make environmental justice arguments. The Imperial Oil refinery emits 53 chemicals into the air. We downloaded all of the NPRI data from 1994 onwards and we looked at how the data was calculated.

There are 6,221 different reports of emissions and only around 300 are based on a physical measure at the refinery. The rest are based on mathematical formulas—little Excel worksheets

that the state and industry have agreed on. This amounts to saying "we admit we are releasing this chemical," but the rest of it is gaslighting. The actual direct measures are only 5.4% of this data, and the measures where they do not say the method are far bigger.

So, our lab is looking at the NPRI and wondering what we can do with this messed up settler colonial data. That is part of what we are asking with Environmental Data Justice: what can we do with this data so that it does not work against us? And there is another question alongside, which is, what if the versions of objects we think with within universities are *wrong*? I think that is a big problem in the Anthropocene—to realize that our fundamental objects, for instance, chemicals, are *wrong*. They have been given to us by the systems that we are seeking to dismantle. We end up working with these objects that have been installed into our world, as the things that populate our world, when they actually are artefacts of the systems we want to dismantle. I

really care about chemical violence, but I think that chemicals, as conventionally presented to us, are the wrong object or they are not *objected* in the right way. This question is part of a project I have with some colleagues—which thinks with and against the Anthropocene—that is called “Engineered Worlds.” We are trying to ask what happens if many of our objects are wrong. I want to unthink and rethink chemicals with data. Can we do data visualizations and rethink what a chemical is, if the way we came to the sciences, to understand a chemical, was built by the industry, was built by the settler state, was built by whiteness, was built by racial capitalism? The version of what chemicals and chemical exposures are, as given to us by industry and state, does not serve environmental justice; it does not serve Indigenous futures. We need a better version of what a chemical is.

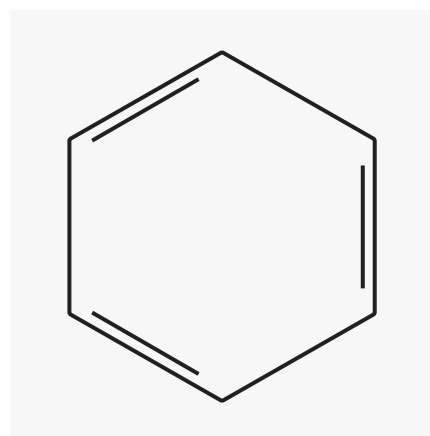
What is wrong with chemicals? So much of the data to understand them is gaslighting—that is the first thing. And the second thing that is wrong with how we think about chemical exposures is that so much of it is damage-based research. Because the state is not tracking industrial chemicals and because corporations do these gaslighting projects, we end up having to show the evidence of violence with our bodies. Our communities have to show the evidence of the damage; they have to hold that burden of showing that damage. I am, here, thinking with Indigenous feminist scholars like Eve Tuck and Audra

Simpson about refusal, about rejecting damage-based research. How can we talk about chemical violence and stick the representational burden onto settler colonialism? Part of this work of changing the ways we understand industrial chemicals concerns how we talk in biology: what are the concepts we use in the life sciences to talk about the ways that chemicals create diversity of life when we have to live with violence? The ways we currently have to talk about how chemicals affect bodies put the burden of holding damage-based narratives onto people. And in this world, if you are damaged, you are disposable.

Our third habit is to think that chemicals are small—this diagram [in the bottom-left corner] is what a chemical is, as if it was just a structure. I call that “chemicals in white space”: it is chemicals with all of the relations taken out of them. I do not think that chemicals are small. I do not believe that they are in white space. I think that they are full of relations; I think that industrial chemicals are massive and extensive. What we want to do is to confront gaslighting in data with other kinds of data visualization, which help to confront and dismantle the settler state. We want to refuse damage-based research, and we want to show that chemicals are not small but that they are part of our relations. “Violence to data, is violence on the land, is violence on our bodies.” We have some inspirations for ways of visualizing chemicals differently, such as the stencils by Erin Marie Konomo from the Native Sexual Health Network, a Métis land defender, connected to their “Violence on the Land, Violence on our Bodies” report (see Women’s Earth Alliance and Native Youth Sexual Health Network). It is not the chemicals but these big systems like fracking that are disrupting body sovereignty and land sovereignty. Violence from pipelines is violence on our bodies. I think it is an important thing to not accept the scaling of chemicals and environmental violence. We must come up with different ways of talking about what is inside what. Violence from refineries is violence on our bodies. Can we think of industrial chemicals having extensive relations? They are not simply molecules;

they are filled with settler colonialism and racial capitalism—connecting to what Angela Harris just said, these relations include “unknown unknowns!” Can we imagine that so-called “chemicals in white space” landing in a body are, in fact, filled with extensive relations? They are fracking, they are settler colonialism, they are racial capitalism, they are the legal structures, and so on. That is what is going on inside you and disrupting you when an industrial chemical enters.

Can we think about the kind of kinship and solidarity that happens when these systems connect us, make us, remake us, disrupt us, hurt us? Can we imagine that we need to attach our understanding of industrial chemicals as extensive relations not to bodies, but to Imperial Oil and other perpetrators? At our lab, we are working to reframe that NPRI Imperial Oil data by attaching an abundance of medical research evidence about low-level exposure harms, different organ systems effects, and reproductive harms to the chemicals Imperial Oil admits to releasing. And, drawing on this problematic NPRI data set, we are trying to find a way of not reproducing “chemicals in white space,” but instead representationally showing the harms chemical pollutants do and attaching those harms to Imperial Oil. Imperial Oil is not just emitting these chemicals; it is emitting violence. Imperial Oil *has* to bear the burden of this violence. Of course, it is not just Imperial Oil, but Imperial Oil as part of a widespread corporate kinship. Imperial Oil is owned by Standard Oil, which is now ExxonMobil, the biggest oil company in the world. Imperial Oil gave birth to Enbridge, which has the longest pipelines in the world (see Technoscience Research Unit). Enbridge as a company derives from Consumer Gas—which is a Toronto company. The president and one of the founders of Consumer Gas was James Austin, who also founded Dominion Bank in 1871, which later became Toronto-Dominion Bank (TD) in the 1950s. It is one of the biggest banks in the world and a major funder of pipelines and the fossil fuel industry, as well as one of the owners of Imperial Oil and Enbridge. So, it is



Benzene, an important refinery pollutant at Imperial Oil. Image from National Center for Biotechnology Information.

indeed not just Imperial Oil: Imperial Oil is one part of a bigger black snake, a widespread infrastructure of the oil and gas industry. Taking this one step further, we can also attend to the refinery and its relationship to finance capital: how to attach our understanding of industrial chemicals to finance capital. We know that TD Bank has been an important target of divestment campaigns around #NoDAPL (No Dakota Access

Pipeline). Can we think that violence from finance capital is also violence on our bodies? Can we connect those dots and can we take this NPRI emissions data from Imperial Oil, from Enbridge, from all the other places that TD Bank funds and stick it on TD Bank?

In attempting to visualize chemical violence as part of settler colonialism we are working towards Environmental Data Justice. I therefore will leave you

with this last point: struggles over data are also struggles over infrastructures, are also struggles over our life supports, are also struggles over what futures are possible, what gets to be in the world, and what is destroyed. When we talk about data justice, it is just as a proxy for what kinds of worlds we are building and what kinds of worlds are destroyed.

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