

# Chemical Futures and Environmental Data Justice

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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.

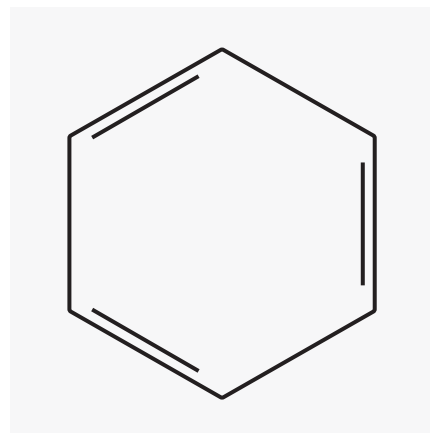
What is wrong with chemicals? So much of the data to understand them is gaslighting—that is the first thing. And the second thing that is wrong with how we think about chemical exposures is that so much of it is damage-based research. Because the state is not tracking industrial chemicals and because 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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