Sarnia's Toxic Blob: Materialities and Temporalities of Oil and Gas in 20th-century Canada

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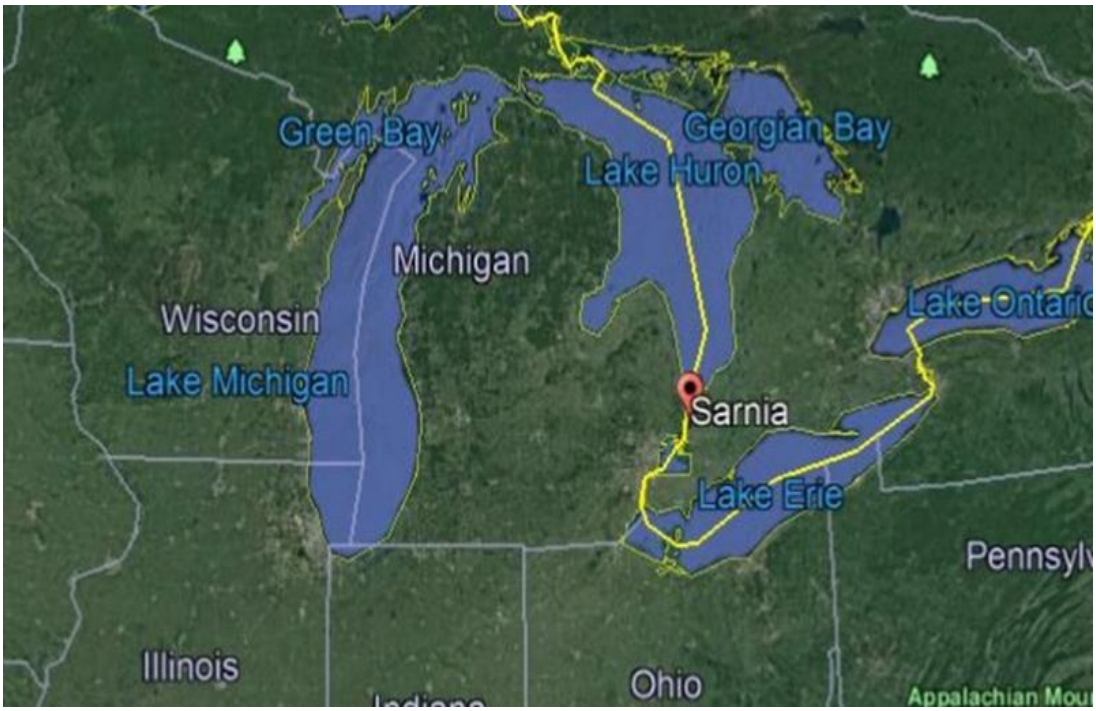
Long Abstract: In September of 1985, a dark tarry mass was discovered in the St. Clair River alongside Sarnia, Ontario. Soon dubbed the "Blob," this phenomenon brought international attention to pollution from industrial facilities in Canada's 'Chemical Valley.' In this paper, I begin with a description of the Sarnia Blob's unique material composition as "vibrant matter" (Bennett 2010), manifesting at a moment in time. Next, I analyze its primary hydrocarbon constituents – oil and natural gas – as substances that developed over eons of geological time, becoming instant "resource materialities" (Richardson & Weszkalnys 2014) at the time of their discovery in 1940s Alberta, Canada. And finally, through the lens of "latency" (Murphy 2013), I consider ways in which toxic fragments from the Blob created disturbing potential futures for an indigenous community downstream, as they entered the food and water supply, and ultimately the bodies, of residents there. Though focused on a particular case, the analysis suggests ways in which oil and gas, as resources, are "entangled with experiences of time," which in turn entail "tensions…between and within national projects and everyday life" (Ferry & Limbert 2008).



Sarnia, Ontario, sits at the headwaters of the St. Clair River, the northern portion of a waterway that connects Lake Huron to Lake Erie in the heart of the Great Lakes. It also forms a segment of the U.S.-Canada border, with Michigan's Thumb to the west, and Southwestern Ontario to the east. On the Canadian side, a vast complex of oil and chemical processing facilities known as Chemical Valley lies just south of Sarnia.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Sarnia residents believe the pollution created by Chemical Valley is linked to their health problems.

It was here that, on September 15th, 1985, an amateur diver heard the sound of an approaching freighter and dove into a depression on the river bottom to avoid its propeller blades. Feeling a strange substance on his face, and with water beginning to seep into his goggles, he quickly propelled himself to the river bank and emerged onto dry land. When the diver removed his goggles, the rubber seal, in his words, "pulled away from my face like bubble gum."[1]

By the 1980s, Chemical Valley industrial facilities had been routinely dumping toxic waste into the river for decades, and news about local water pollution, and even of specific spill events, had become so commonplace as to attract little notice. But this incident was different. Local media reports of a gooey caustic mass in the river that could instantly melt rubber prompted a preliminary investigation by a team of professional divers; they found the substance to be part of a dark, tarry, gooey, toxic, caustic mass the size of a basketball court that, while remaining more-or-less stationary on the river bottom, was growing in size. These revelations attracted journalists from across Canada and the U.S., who soon began referring to this entity as the Sarnia Blob – a nickname that stuck and was soon picked up by elected officials and others. It was even used in reports published of scientists sent by the provincial and federal Ministries of Environment to investigate the content and origins of this giant underwater mass.

In this paper, I begin with a description of the Sarnia Blob's unique material composition, manifesting at a moment in time. Next, I analyze its primary constituents – oil and natural gas – as substances that developed over eons of a geological past until their discovery in 1940s Alberta, Canada. And finally, I consider ways in which toxic fragments from the Blob created disturbing potential futures for an indigenous community living downstream.

[1] LeBlanc, Beth 2014 "The 'Blob' is gone," *Port Huron Times Herald*, October 13, 2014.

Sarnia's Blob: vibrant matter of a tenuous present

Although there must have been an individual who first coined the term "Blob" for this enormous patch of toxic pollution, I have been unable to find any reference to that initial usage.

However, it seems safe to assume that it was inspired by the 1958 teen horror classic of that name in which the title character is an entity from outer-space that lands near a small town on summer night. Then, as described by the trailer's narrator, it "creeps and oozes" into town, "growing bigger and *bigger*" along the way as it envelops and consumes humans and other life forms. Most frightening of all, it seems that it can't be stopped - that this Blob is indestructible. Though the Sarnia Blob was limited in its destructive powers, there were nonetheless ways in which it bore an uncanny resemblance to its horror film predecessor.

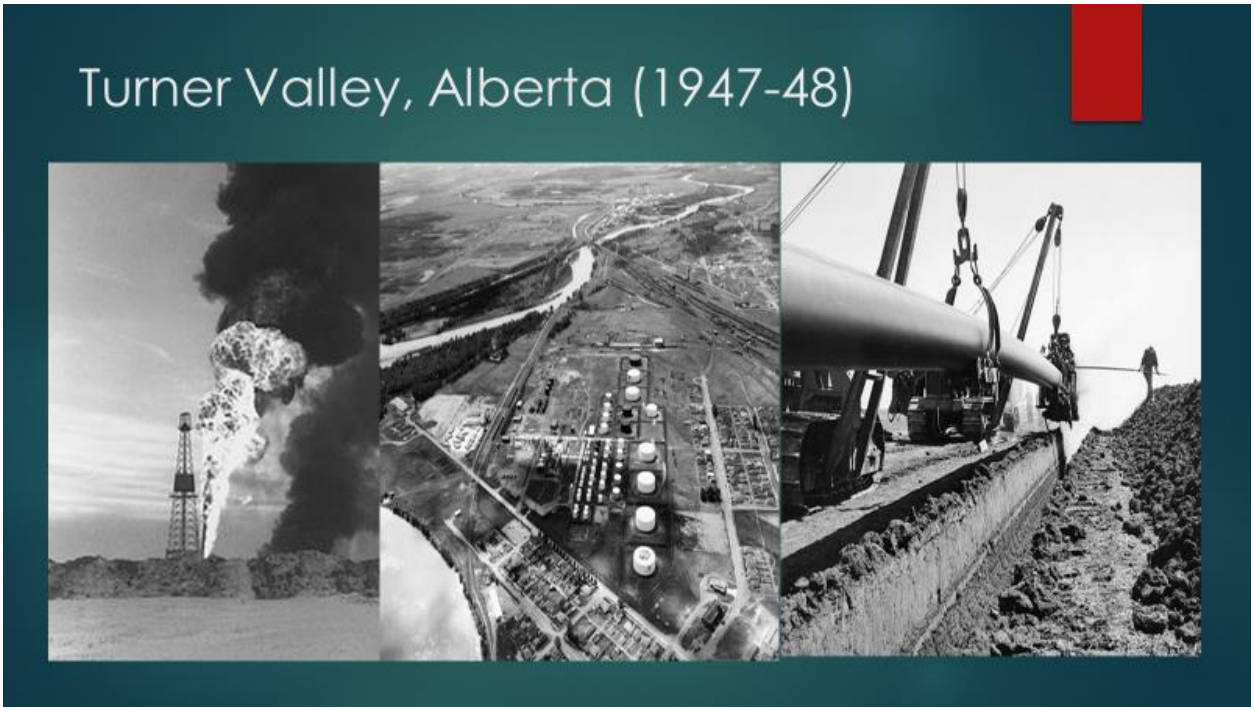
The catalyst for its formation had been 500 gallons of perchloroethylene, or PCE, which had spilled into the river from a Chemical Valley plant owned by Dow Chemical Canada. Derived from natural gas liquids, this colorless fluid, being 60% heavier than water, sank

immediately to the river bottom. This was not, however, a case of the disposal habits of local plants, who routinely dumped their waste into the St. Clair River. Rather, PCE, also known as dry-cleaning solvent, was one of the primary *products* of that Dow facility. And when it ended up in the river it, in a phrase used by Dow officials with more than a hint of pride, began just "doing its job," by sucking up the toxic stew of pollutants already in the river – carcinogens such as styrene from Esso, benzene from Polysar, and polycyclic aromatic hydrocarbons (PAHs) from Suncor (King & Sherbin 1986).[2] In addition, the solvent attracted oily waste from deep injection wells that local industries used for storage of their petro-wastes, and which had been seeping up into the riverbed and accumulating in globules there for decades. These globules, when finally discovered and tested, were found to contain, among other hazards, dioxins.

The result of these processes was a mega-Blob that in many ways evoked the monster of horror movie fame. The PCE, in "doing its job," took on an unsettling agentive quality; as it incorporated hazardous chemicals and oily globules into its mass, it grew in size while lurking out of sight underwater; its persistent and multiple toxicities threatened humans and other life forms; and finally, there were serious questions as to how, or even if, it might be destroyed. In short, this was, in Jane Bennett's (2010) phrase, "vibrant matter" – an accidental assemblage that was "as much force as entity, as much energy as matter" (p.22) - and in this case, vibrant matter of a most menacing sort. But to find the origins of the Sarnia Blob, we need not look to outer space. Rather, the natural gas liquids and petroleum wastes that formed its primary constituents had developed deep within planet Earth, in the ancient past of what is now the Province of Alberta.

Alberta's hydrocarbons: geological and historical resource materialities

Eons ago, ancient flora lived and died in the shallow sea that once covered the region now known as Alberta, Canada. Their fossil remains, under tremendous pressure over many millions of years, gradually transformed into hydrocarbon substances that traveled underground through pores and fissures in the surrounding rock formations. Eventually, the earth wrinkled into dome-shaped folds, trapping these substances under layers of shale beneath a place that came to be called Turner Valley in Southern Alberta. Then, in 1947, at an Imperial Oil well called Leduc 1, those substances were released in a gusher that sent a mix of oil, gas, mud, water, and flames shooting 50 feet into the air. This event became instantly legendary: in a documentary film produced by Imperial just two years later, Leduc 1 was proclaimed to have begun an oil boom "destined to change the entire energy supply picture in Canada," as "oil from a million years underground goes out to serve Canadians!"[3]



[3] *The Story of Oil* 1949 Imperial Oil.

But these momentous transformations could not happen on their own. To realize their economic potential, the motley mix that spewed from underground had to be separated into oil and gas, which required a vast infrastructure to achieve. Hundreds of wells were drilled throughout the formerly bucolic Turner Valley, each with its own derrick; numerous processing plants were constructed to separate, alter, and recombine the constituents of the oil and gas into various commercial products; and vast networks of pipeline were built to carry them to destinations near and far throughout North America.

All these developments taken together illustrate the social and cultural processes necessary for natural substances to became "resource materialities" – the term proposed by Tanya Richardson and Gisa Wezkalnys (2014) to highlight the fact that when natural substances become resources, they "are constitutive of and constituted within arrangements" of "technologies, discourse, and practices" with social and political implications.

The resource materialities that formed in Alberta's Turner Valley extended their social and political implications to include Chemical Valley, primarily through two pipelines. The Interprovincial Pipeline was extended in 1953 to deliver oil to Sarnia plants, where it was refined and processed, after which the wastes were injected deep into the earth where they remained until making their way up to the river bed, to be eventually incorporated into the Blob. And the Cochin pipeline, completed in 1978, sent ethylene – a natural gas liquid derivative – from Southern Alberta through the American Midwest to its ultimate destination in Chemical Valley; it was here, then, that it came to constitute the key component for production of the perchloroethylene that spilled into the St. Clair River, thereby initiating the Blob-formation process.

Dow Chemical was found to be the plant from which the PCE had spilled, and therefore the company primarily responsible for cleaning up the Blob. Although the corporation *began*

some clean-up efforts in late fall of 1985, the process dragged out over many years, and involved "loading vacuum trucks with extended hoses onto barges to suck up the toxic mass."[4]

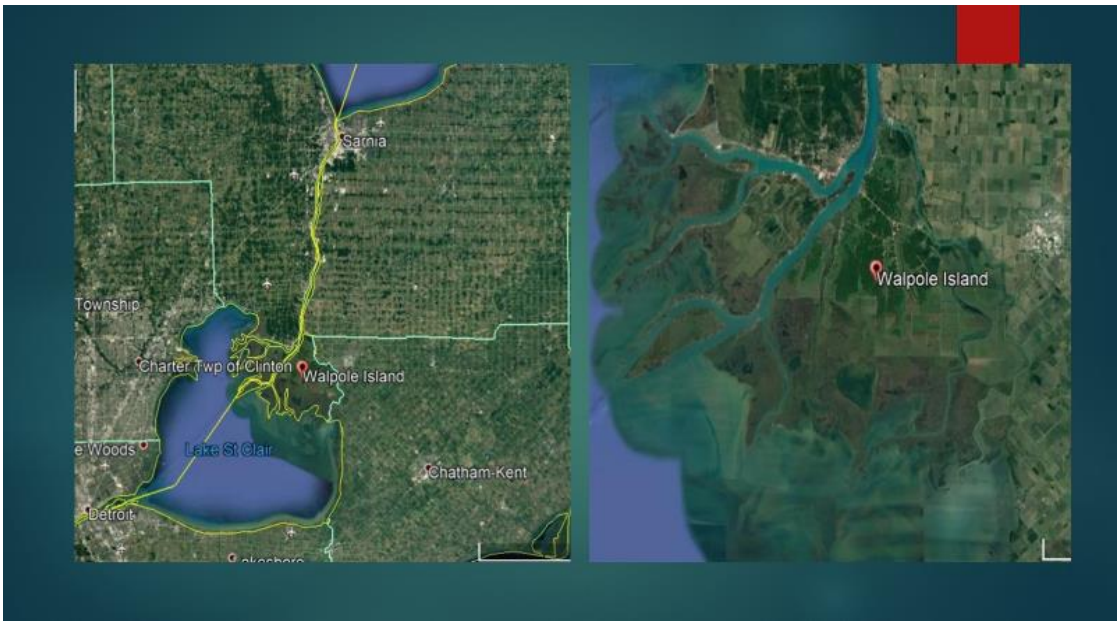
Dow finally completed their cleanup in 2005, just as they were preparing to close their Sarnia plant for good. Especially during the first few years, but also to a lesser degree throughout the 1990s and into the early 21st century, hazardous fragments set loose by the clean-up process were sent flowing south. Especially vulnerable to these toxic substances were the residents of an Indigenous community located directly downstream from Chemical Valley.

Bkegwanong's Latency: A future already altered

The territory traditionally known as Bkegwanong – "Where the Waters Divide" – by its indigenous inhabitants, and officially known as Walpole Island First Nation, constitutes a unique eco-region of prairies, oak savannahs, and marshes. Though this land was never ceded to Canada, its Anishinaabe inhabitants watched throughout the 20th century as the wetlands at the

[44] LeBlanc, Beth *Port Huron Times Herald,* August 30, 2014.

southern tip of the island became, in the words of a local environmentalist, "like a sponge soaking in all the contaminants" that were constantly being released into the river from Chemical Valley facilities.[5]



Traditional practices still observed on the island, as described by an elder hunter, entailed deep knowledge of the land and its other-than-human inhabitants: "You tend to see a pattern year after year…Our people need to know there's a time to hunt [and to fish], and a time to stop."[6] Yet over the decades of the 20th century, as Chemical Valley industries grew, residents became aware of troubling changes in their local eco-system, such as diseased and deformed fish, a drastic reduction in the muskrat population, which had been a primary food source for generations, and a marked decline in the quality of their drinking water.

As these changes accumulated, anxieties arose that, in the words of one resident, were experienced "like a ticking time bomb in the back of your brain, and when you hear about a spill,

[5] Lilliston Ben "Island of Poison," Multinational Monitor 14:9: September 1992.
[6] Quote from Stephens (2009), p. 135.

it explodes and there's chaos and fear but there's nothing you can do."[7] This is what happened during the fall of 1985, as Walpole Island residents began receiving news of Sarnia's Toxic Blob. Some of the first signs that pollutants from the Blob had reached the waters of Bkegwanong were experienced in mundane habits of daily life, as people noted an "oily film" on their skin, and "floating beads" in their coffee.[8] Over the following weeks and months, reports that were emerging from on-going investigations raised anxieties further. A local educator described the mood within the community as "a sense of terror" that was arising "with the realization that there were direct health impacts on kids that were being born during that time,"[9] as well as the potential long-term health effects on people of all ages, including learning disabilities, cardio-vascular damage, and numerous cancers.

This, then, created another kind of "ticking time bomb" as residents came to realize the potential of the Blob to harm their future health and well-being, as well as that of future generations, through latency. As described by STS scholar Michelle Murphy (2013), latency "names the wait for the effects of the past to arrive in the present" and ultimately into future, since "through latency, the future is already altered" (p.10). Murphy points out that the resulting anxiety – evoked by the uncertainty of the outcome for an altered future – is especially acute in the context of chemical infrastructures through which "chemical injury is displaced temporally, such that accountabilities exceed the scope of individual lives, bioaccumulating or persisting over time… into the long future" (2013:10). And this is, in fact, what has happened to Walpole Island's indigenous community. Over the 35 years since the Blob, Bkegwanong residents have experienced many more spills, and have continued to perceive increases in diseases, disabilities,

[7] Quote from Stephens (2009), p. 147.
[8] Quotes from Vanwynsberghe (2000), p. 108.
[9] Quote from Vanwynsberge (2000), p. 109.

and untimely deaths.[10] Yet, no direct connections can be made, and accountability remains exasperatingly allusive.

Concluding Thoughts: The politics of resources and their temporalities

In this paper, I have focused on a particular case – Sarnia's Toxic Blob – and traced its materiality back to ancient hydrocarbons deep under the ground of Alberta, and forward, deep inside the bodies of Anishinaabe people on Walpole Island. Each form of materiality is situated within a main time frame: the Blob in a present moment; the formation of its oil and gas in the past; and the (potential) effects of its toxic fragments in the future. In closing, I'd like to gesture toward the potential for temporal analysis as that taken by Elizabeth Ferry and Mandana Limbert. In their edited volume *Timely Assets* (2008), Ferry and Limbert explore "the politics of resources and their temporalities," emphasizing the multiple ways in which resources are "entangled with experiences of time." Such an approach, I suggest, is well suited to illuminating how oil and gas extraction and processing have shaped, and been shaped by, Canada's national project as a petro-state, as well as the daily lives of differently positioned communities in Canada throughout the 20th century and beyond.

[10] See Stephens 2009 for a thorough study of these issues on Walpole Island.

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