

## **Transformations of Oil: Visibility, Scale, and Climate in Warren Cariou's Petrography**

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### Résumé de l'article

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# Transformations of Oil: Visibility, Scale, and Climate in Warren Cariou's Petrography

Elysia H. French

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1. This paper comes from a larger project in which I explore the ways in which Indigenous land ownership, rights, and visibility have been disavowed in the tradition of landscape art. A considerable motivation for Warren Cariou, who is of mixed Métis and European heritage, is to insert or make visible Indigenous presence in the oil sands landscapes. Cariou stated (in conversation with Elysia French, February 18, 2016): "I think the idea that settler-colonialism is really mapped right onto this sort of petro-state, in a sense that, that same kind of avoidance, that same

Winnipeg-based multi-disciplinary artist Warren Cariou's *Petrography* (2014–ongoing) helps us think through our relationship to the increasingly evident and alarming effects of climate change—annual record-high temperatures, droughts, wildfires, flooding—and our understanding of their complex causes, manifestations, and future implications.<sup>1</sup> The goal of this investigation into Cariou's series of petrographs is to add to the growing field of the environmental humanities, which is playing a crucial and unique role in generating affective understandings of the perceived conceptual problems of energy crises and climate change.<sup>2</sup> Through Cariou's work, I explore how the visual culture of oil, by operating on emotional and affective levels, is mobilized to increase knowledge and awareness of environmental issues. Further, I examine the potential for visual culture to serve as an accessible mode of communication by acting as a political expedient that implicates viewers in a manner that may promote new forms of environmental, social, and political understandings.

Cariou's petrography, or petroleum-photography, begins with the artist photographing seemingly "invisible," that is, not often seen, sites of oil extraction in the Alberta oil sands. These images are later developed—poignantly, relying on stable weather conditions—using a technique inspired by Nicéphore Niépce's nineteenth-century photographic process. Cariou's petrographs intimately visualize sites of oil to highlight a core issue of the anthropocene: the continuing, problematic division between human and nonhuman relations. Cariou's commitment to visualizing the seemingly invisible helps to complicate the hierarchical structures of human and non-human relations by speaking to what political and cultural theorist Jane Bennett has termed "vibrant matter." That is, through the process of petrography, Cariou acknowledges the "vital materiality" and agency of the non-human apparatuses of oil.<sup>3</sup> By recognizing such agency, his petrographs capture the consequences of understanding and treating the nonhuman as an invisible and passive resource. My analysis of this series demonstrates that the resulting petrographs repurpose a natural resource to draw attention to our complex relationship with oil, the contradiction this creates in the age of climate change, and the relevance of continuing extractivist practices. Ultimately, Cariou's work raises larger questions about the efficacy and ethics of artists employing natural resources to comment on these issues.

Cariou describes petrography as the art of creating photographic images through the action of sunlight upon bitumen.<sup>4</sup> He is quite open in his

kind of inability or unwillingness to see something, to see that places are still Indigenous spaces.” He continues: “There is no accident that these mines, tar sands mines... happen almost entirely, it seems, in Indigenous areas and in areas that are still traditional land of Indigenous people or that have Native communities nearby, because the Native communities are already invisible. So, adding these developments, or destruction to that land, within the colonial imagination, it’s like it is already empty ... what I called the new Terra Nullius, I talk about that as Indigenous space as something that is thought to be empty, not in the sense of colonialism in the early era of thought to be empty so that we could take it, but it is thought to be empty because it is wasteland, it is already destroyed, it is already worthless and so it is okay to wreck it even more. And I really think that’s operating in the tar sands in a major way.”

2. Key works in the environmental humanities include Deborah Bird Rose et al., “Thinking Through the Environment, Unsettling the Humanities,” in *Environmental Humanities* 1 (2012): 1–5; Ursula K. Heise, Jon Christensen, and Michelle Niemann (eds.), *Routledge Companion to the Environmental Humanities* (New York, 2017); Timothy Morton, *Ecology Without Nature: Rethinking Environmental Aesthetics* (Cambridge, MA, 2007); Timothy Morton, *Hyperobjects: Philosophy and Ecology After the End of the World* (Minneapolis, 2013); Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York, 1991); Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham, NC, 2016); Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, MA, 2011); Imre Szeman and Dominic Boyer (eds.), *Energy Humanities: An Anthology* (Maryland, 2017).

3. Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC, 2010). For further discussion on the trouble of self-naming an era and human/nonhuman (or more-than-human) relations, see Zoe Todd, “Fish Pluralities: Human-Animal Relations and Sites of Engagement in Paulatuuq, Arctic Circle,” *Inuit Studies* 38, 1–2 (2014): 217–38, and Kirsty Robertson, “Plastiglomerate,” *e-flux* 78 (Dec 2016).

4. Warren Cariou and Jon Gordon, “Petrography, The Tar Sands Paradise, and the Medium of Modernity,” *The Goose* 14, 2 (2016), 1.

5. For more information on Cariou’s inspiration and use of Niépce, see the artist’s website,

discussions about his artistic process, an openness that reflects his desire not only to highlight how bitumen is central to the project, but also to make clear his and *our* relationship with the substance. Originally, Cariou was interested in working directly with the natural material and wanted to experiment with early photographic practices. Specifically, he was inspired by Niépce, who, in his first photograph (1826 or 1827), utilized bitumen of Judea and drops of lavender oil to develop an image on a highly polished metal plate.<sup>5</sup> Using Niépce’s *Memoire on the Heliograph* as an instructional guide, Cariou collects samples of bitumen along public-access sites of the Athabasca River. He places them in a pot, which he has half-filled with boiling water, and boils the mixture for hours. During this process he periodically skims the bitumen that has risen to the surface. Essentially this is a personalized, experimental, and miniature replica of large-scale, in-situ oil extraction in the oil sands.<sup>6</sup> Once Cariou has collected enough bitumen, he mixes it with lavender oil and spreads a thin coat of it on a highly polished plate, most often a mirrored aluminum plate, which has a higher success rate. Cariou then heats the coated plate, and after it has cooled, he makes a contact print by placing a digital transparency of a selected image (one of his photographs of sites of the oil sands) on top of the plate. He then leaves the print and plate in direct sunlight for approximately sixteen hours. Later, after the print has been exposed for the set time, he removes the transparency and the image is developed using a mixture of kerosene and lavender oil.<sup>7</sup> According to Cariou, on average only about 30% of his petroglyphs withstand the developing process. As frustrating as this may be, it serves as an important reminder to him that bitumen is in fact natural: “It is part of an ecosystem that works, or can work, according to its own logic.”<sup>8</sup> I would suggest that Cariou’s timely reconsideration of oil and determination to re-naturalize the material highlight an underlying concern to rethink extraction practices in light of pressing environmental concerns.

In order to tease out some of these larger issues, I will explore Cariou’s petrography work through a discussion of three concepts: scale, visibility, and climate. In their recent publication, art historian Ross Barrett and cultural theorist Daniel Worden emphasize the complexities of the culture of oil, which is largely secreted out of sight in our society in terms of both extraction and refinery. It is also made invisible, they argue, through mundane daily uses. At the same time, the oil industry is “an underwriter of nearly every major museum, and...petroleum products are used to make film, ink, paint, and countless other tools used to produce art today.” The oil industry, Barrett and Worden conclude, is thus “as ubiquitous and necessary to contemporary life as money.”<sup>9</sup> It is this circular, and often contradictory, relationship we have with oil that Cariou examines in his art. Although we have come to know the Alberta oil sands as spectacle through immense aerial photographs, popularized by photographers such as Edward Burtynsky and Louis Helbig, these sites remain largely inaccessible, unseen, and hidden from mainstream awareness. Cariou’s petroglyphs, I argue, contribute to the task of making visible the unseen aspects of oil by moving beyond the immense aerial perspectives of mining and subtly drawing awareness to our relentless, yet disconnected, relationship to day-to-day encounters with oil. Further, the pace, care, and labour-intensive process of developing the petroglyphs counteracts



Figure 1. Warren Cariou, *Bitumen Mine Landscape with Five Trucks*, 2015. Petrograph, version 1/3. 21.6 × 27.9 cm. Reprinted with permission of the artist.

www.warrencariou.com/petrography, and Nicéphore Niépce, "Memoire on the Heliograph," 1833, translated by Edward Epstein, in *Classic Essays on Photography*, ed. Alan Trachtenberg (New Haven, 1980), available on [photohelios-team.blogspot.ca/2009/02/memoire-on-theheliograph.html](http://photohelios-team.blogspot.ca/2009/02/memoire-on-theheliograph.html).

6. Cariou's development process shares similarities to the "oil sands extraction demonstration" performed at the Oil Sands Discovery Centre in Fort McMurray, Alberta (<http://history.alberta.ca/oilsands/docs/Oilsands-Daily-Schedule-2015.pdf>).

7. Information on Cariou's artistic practice was discussed in an interview with the author February 18, 2016. Further detailed information can be found on the artist's website: Warren Cariou, "The Making of a Petrograph," 2014. [www.warrencariou.com/petrography/](http://www.warrencariou.com/petrography/).

8. Cariou and Gordon, "Petrography," 7.

9. Ross Barrett and Daniel Worden, eds., *Oil Culture* (Minnesota, 2015), xix.

10. Cariou and Gordon, "Petrography," 2.

11. Debra J. Davidson and Michael Gismondi, *Challenging Legitimacy at the Precipice of Energy Calamity* (New York, 2011), 157–58.

12. *Ibid.*, 41.

understandings of larger-scale operations in, for instance, the speed and scale of bitumen extraction at an industrial level. For Cariou, "these petrographs use bitumen itself as a medium of representation, creating a particular perspective on the world: extractive industry viewed through a film of oil."<sup>10</sup> That said, Cariou's petrographs indeed mobilize the visual language of industrial landscapes, such as the "discourse of immensity,"<sup>11</sup> a term coined by Debra J. Davidson and Mike Gismondi to better understand the complexities of the "you have to see it to believe it" mentality. However, Cariou is uniquely able to repurpose the natural resource. He makes its extracted form tangible at the same time as he implicates the viewer by placing their reflected portrait into the frame. Oil is arguably widely perceived as a dirty contaminant but also as a necessary resource on which we have come to rely in order to maintain our contemporary demands, and it is this personal, disconnected, and contradictory relationship that Cariou addresses.

### Scale

To be sure, visualizing and documenting resource extraction practices in Canada is not new: Davidson and Gismondi explain that "at the turn of the last century, government officials, commercial promoters, and historians constructed Canada's northwest landscape as a storehouse of hidden riches in the attic."<sup>12</sup> Early twentieth-century travellers to the oil sands, explorers, and geological surveyors alike described sites that held a surplus of oil as an accessible resource waiting to be extracted for new and exciting endeavours (such as asphalt for paving roads for the growing automobile industry). Numerous documents and reports of the time implied that oil was seeping from the sand and earth, which as Davidson and Gismondi point out, would have "excite[d] the imaginations of journalists, governments, and others, at a time when the



world was only just discovering the potential for oil.”<sup>13</sup> Oil sands extraction became understood as only a small and expendable fragment of the non-human world, as though the vast and prosperous wilderness was gifting this resource to humanity.

The complicated relationship of the industrial (and later toxic) sublime with extractive and romantic gazes remains a dominant issue in contemporary oil sands photography.<sup>14</sup> For instance, a bird’s-eye view can indicate not only the sheer scale of industrial development and resource extraction, but also how the awe-inspiring sublime wilderness is now being replaced with awe-inspiring advancements in science and technology. Davidson and Gismondi argue that this particular visual storytelling has “established an authoritative industrial discourse in support of corporate investment, government assistance, the inevitability of commercial-scale exploitation, and ultimately the human domination of passive nature.”<sup>15</sup> This statement suggests what the current motivations in the oil industry might be, and highlights the sometimes-hostile relationship between the human and non-human worlds. Furthermore, it demonstrates what Peter Hodgins and Peter Thompson have described as the trouble with romanticism and environmental thought: “continued acceptance of extractive capitalism in Canada and elsewhere is predicated on the continued mutual implication of the romantic and extractive gazes.”<sup>16</sup>

When we think of the oil sands in terms of artistic production, we often conjure the type of imagery popularized by Burtynsky. These large-scale photographs offer the viewer an opportunity to observe the sheer magnitude of oil production and land devastation from a perspective they likely would not otherwise encounter. However, in Burtynsky’s approach, the viewer is also presented with an aestheticized view, a purposeful tactic the artist utilizes in hopes of welcoming environmental, political, and even economic contemplation. Burtynsky’s aestheticized scale complies with the discourse of immensity while also demonstrating a lack of commitment to either condemn or celebrate the oil sands. He has explained that he would like viewers to bring their own experiences and knowledge to the evaluation of the work and to fix their own meanings to the images.<sup>17</sup> Burtynsky’s approach draws attention to our understanding of the scale of environmental transformation that continues to take place. Cariou, on the other hand, approaches the issue of scale from a different perspective:

What I was immediately taken with when I first flew over the tar sands, was this is beautiful, this is aesthetically arresting ... it becomes aestheticized when you try to approach that scale. That’s a problem, you want to be able to have the viewer moving, not just sort of arresting in awe in front of the image, you want them to be alerted about something, that was my whole influence: people need to know about this, people need to do something about this. Not just step back and say wow that’s beautiful.<sup>18</sup>

According to Cariou then, aerial perspective photographs risk not only aestheticizing the object, but also distancing the viewer from the frame, and from reality, by creating a spectacle of the site,<sup>19</sup> although they can also play a crucial role in capturing the scale of extraction for viewers who are unable to visit the sites, and therefore serve to document a seemingly invisible site. Cariou, in his *Bitumen Mine Landscape with Five Trucks*, | **fig. 1** | offers

13. Ibid.

14. For more on the toxic sublime (and Edward Burtynsky), see Jennifer Peeples, “Toxic Sublime: Imaging Contaminated Landscapes,” *Environmental Communication* 5, 4 (Dec. 2011): 373–92; Amanda Boetzkes, “Waste and the Sublime Landscape,” *RACAR* 35, 1 (2010): 22–31; and Carol Diehl, “The Toxic Sublime,” *Art in America* 92, 2 (2006): 118–23.

15. Davidson and Gismondi, *Challenging Legitimacy*, 39.

16. Peter Hodgins and Peter Thompson, “Taking the Romance out of Extraction: Contemporary Canadian Artists and the Subversion of the Romantic/Extractive Gaze,” *Environmental Communication* 5, 4 (Dec 2011), 395.

17. Edward Burtynsky, interview with George Stroumboulopoulos, *The Hour*, CBC, October 23, 2008. See also Burtynsky’s website: [www.edwardburtynsky.com](http://www.edwardburtynsky.com)

18. Warren Cariou in conversation with Elysia French, February 18, 2016.

19. For further information on distancing the frame see Saffron O’Neill, “Image Matters: Climate Change Imagery in us, uk and Australian Newspapers,” *Geoforum* 49 (2013): 10–19.

a compelling way to advance the formal use of scale through a rethinking of stylistic approaches and issues of representation. In this petrograph the viewer becomes witness to the scale of industrialization through the representation of heavy hauler trucks, which appear miniscule in the vastness of the extracted land. Reflecting on this tactic, cultural theorists Imre Szeman and Maria Whiteman write, “With the exception of small vehicles that appear to be more like toy trucks than the genuine monstrosities they in fact are (the largest ground vehicles on the planet are put to work in the oil sands), there is seldom evidence of human bodies in action in the mine sites.” They continue, “To frame the scale of these sites in a single image is to say all that one needs to say about them: such images constitute not only a specific indictment of the oil sands, but form an allegory that condenses the brutal environmental consequences of capitalist modernity into a single image.”<sup>20</sup> Although the trucks may be ambiguous for some in terms of assessing scale, they indeed serve as a reminder of the vastness of extraction. Despite the still frame, the petrograph communicates a sense of movement; the roads that the heavy haulers follow extend beyond the frame of the image, which implies that this is only a fragment of the immensity of the oil sands.

For Cariou, it was essential to capture the sheer size of extraction and simultaneously reveal the seemingly invisible aspects of oil. The petrographs go a step further in his astute use of scale: the final objects are hand-held, intimate, ranging in size from about 10 × 15 cm to 20 × 25 cm. Cariou believes the intimate size of the object gestures back toward Niépce’s heliography, the daguerreotype, and other forms of early photography in which the technology of the time restricted the size of the objects.<sup>21</sup> This gesture to the past, I argue, raises questions about the relevance of the petrographs’ content, natural resource extraction, and our current uses and abuses of the land. In ideal circumstances, the viewer can hold a petrograph in their hand and move the plate around in the light in order for the image to be fully revealed. The surface of the petrograph is quite reflective; as a result the image is better seen in ambient light. Additionally, the plate acts as a mirror that reflects the viewer’s portrait both back to them and into the frame. The extended time the viewer has to spend with the petrograph and the intimate experience that places the viewer in both the frame and the content of the image draw a compelling connection between visibility and oil: viewers are implicated in the scene and are asked to acknowledge and recognize their participation in the culture of oil.

### Visibility<sup>22</sup>

In petrographs such as *Suncor—Smoke, Steel and Water* | fig. 2 | Cariou has to all extent and purposes removed all recognizable references to the nonhuman world; the brown, amber, and gold glow of the plates create a historic aesthetic, as though this object is a relic, an image of an extinct site of industrialization from past civilizations. Furthermore, the mirrored and reflective varnish of the petrograph is conducive to a more laboured viewing experience. This focuses our attention on the documented landscape—we need to work and commit our time to reveal its content—as it emerges in the light and withdraws in the shadows. The mirrored surface, however, also works to distract the viewer from the documented landscape. As cultural theorist

20. Imre Szeman and Maria Whiteman, “Oil Imag(e)inaries: Critical Realism and the Oil Sands,” *Imaginations: Journal of Cross-Cultural Image Studies* 3, 2 (2011): 46–67.

21. Warren Cariou in conversation with Elysia French, February 18, 2016.

22. Concepts such as “Empty Landscapes” and the “Terra Nullius” are key to understanding how colonialism is at the core of issues of visibility in landscape and resource narratives. Central to this problematic is the erasure and deliberate exclusion of Indigenous peoples. (Arguably, Burtynsky and contemporaries could be criticized for erasing the Indigenous presence from the image in the same way that many historical and modern settler artists did.) For Cariou on the new Terra Nullius see his article “Edgework: Indigenous Poetics as Re-Placement,” in *Indigenous Poetics in Canada*, ed. Neal McLeod (Waterloo, 2014). For further reading see Leslie Dawn, *National Visions, National Blindness: Canadian Art and Identities in the 1920s* (Vancouver, 2006); Lynda Jessup, Kirsty Robertson, and Erin Morton, eds., *Negotiations in a Vacant Lot: Studying the Visual in Canada* (Montreal, 2014); Lynda Jessup, “Landscapes of Sport, Landscapes of Exclusion: The ‘Sportsman’s Paradise’ in Late-Nineteenth-Century Canadian Painting,” *Journal of Canadian Studies* (Winter 2006); Daniel Francis, *The Imaginary Indian: The Image of the Indian in Canadian Culture* (Vancouver, 2011 [1992]); John O’Brien and Peter White, eds., *Beyond Wilderness: The Group of Seven, Canadian Identity and Contemporary Art* (Montreal, 2007); Jonathan Bordo, “Jack Pine: Wilderness Sublime or the Erasure of the Aboriginal Presence from the Landscape,” *Journal of Canadian Studies* 4, 27 (1992); Karl Jacoby, *Crimes Against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley, 2003); Eva Mackey, *The House of Difference: Cultural Politics and National Identity in Canada* (Toronto, 2002 [1998]).

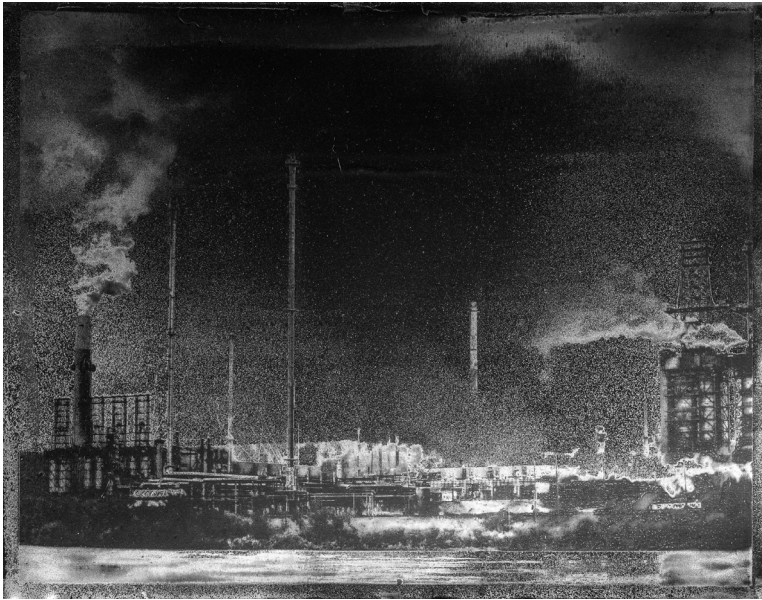


Figure 2. Warren Cariou, *Suncor—Smoke, Steel and Water*, 2015. Petrograph, version 1/3. 21.6 × 27.9 cm. Reprinted with permission of the artist.

Jon Gordon argues, the image becomes a form of self-portraiture due to the viewer's reflection, which is also the only evident human body in most of the petrographs. Gordon writes, "the way we see ourselves through the bitumen of a petrograph, one's own face reflected in the images, is a way of showing the viewers their implication in the process of development that the images depict." He further explains how, "without the extreme detail and depth of field, without the emphasis on abstract pattern, and without a full spectrum of colours, petrographs do less to aestheticize the scenes."<sup>23</sup> Cariou's petrographs thus address Szeman's contention that the visual culture of oil can reveal the unseen landscapes by drawing our attention to the "apparatuses and infrastructures that produce and are produced by oil, from sites of extraction largely hidden from view."<sup>24</sup> Cariou's petrographs offer the viewer an opportunity to consume the hidden sites of the oil sands through an implicated self-reflection that complicates our viewing experience and understanding of industrial and environmental landscapes. As Cariou states, "It just seemed to be this very massive visible thing that no one was *really* looking at."<sup>25</sup>

The role of visibility also works to highlight our human relationship with the nonhuman world. For Cariou, the idea of repurposing bitumen is also about finding a way to make visible our relationship with oil—seeing ourselves through, or as, oil. He states, "Because with energy of all kinds, but certainly with oil, right now in the modern way in which our energy regime works, we do have a relationship with this stuff but we don't know that, or we are separated from it."<sup>26</sup> As such, visibility operates on multiple levels in this project: it makes visible both the apparatuses of oil and our strained relationship with the resource. As Cariou explains, we put it in our cars, for instance, and we may have a slight whiff of it, but we do not really have a direct connection with it. "That was a thing that I found very interesting," he explains, "to

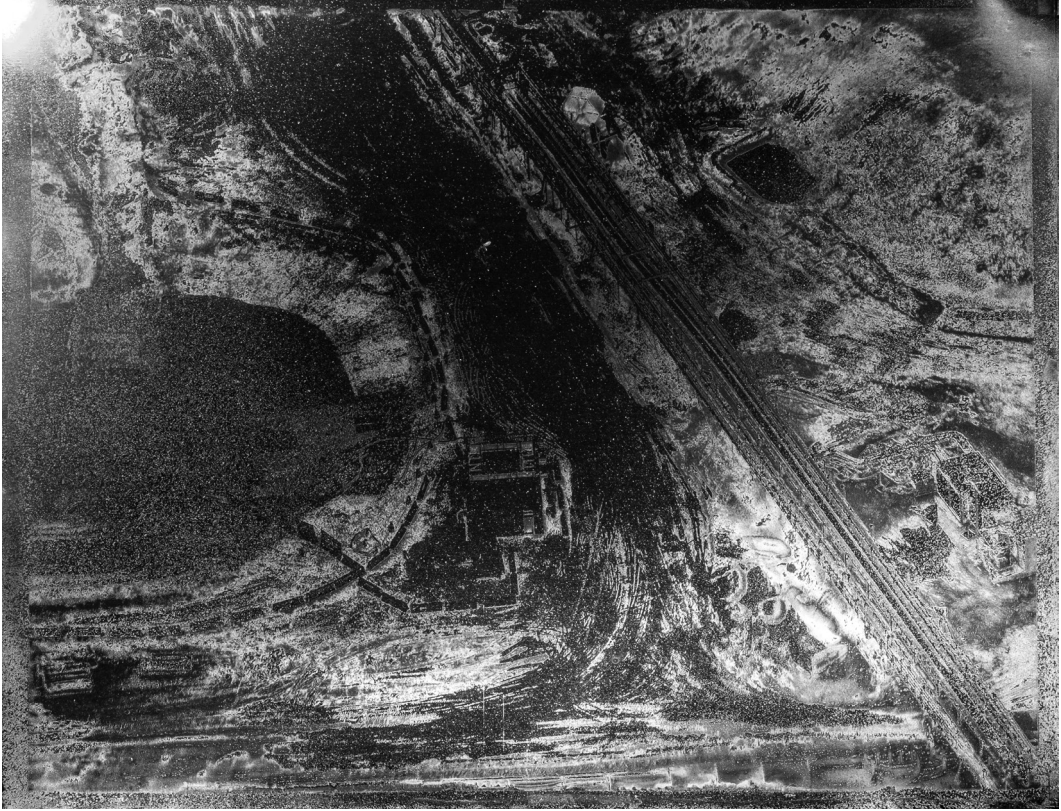
23. Cariou and Gordon, "Petrography," 16–17.

24. Imre Szeman, "How to Know About Oil: Energy Epistemologies and Political Futures," in *Journal of Canadian Studies* 47, 3 (2013), 154.

25. Warren Cariou in conversation with Elysia French, February 18, 2016.

26. *Ibid.*





**Figure 3.** Warren Cariou, *Open Earth With Pipeline*, 2015. Petrograph, version 1/3. 21.6 x 27.9 cm. Reprinted with permission of the artist.



**Figure 4.** Detail of Warren Cariou, *Open Earth With Pipeline*. Reprinted with permission of the artist.



use oil in a way that doesn't make it disappear, that in fact just keeps it there in front of you."<sup>27</sup> Although viewers are not in attendance during the developing process of the petrographs—they do not smell the toxic materials or see the objects as they are manufactured—they become aware in viewing them that they are actually looking at oil. "They're in a relationship with that stuff," Cariou states, "and hopefully that will make them reflect on other ways they are in a relationship with it."<sup>28</sup>

### Climate

In order to maximize the 30% chance of success of each petrograph, Cariou relies heavily on natural resources such as bitumen and lavender. Also crucial to the success of each project are stable weather conditions. In order for the digital transparency to set on the plate, according to his current artistic practice, Cariou must leave the object in direct sunlight for approximately sixteen hours. In Winnipeg, where he currently produces his work, production is limited to the summer months, and as he explains, only certain days in the summer, because if it rains during the exposure process, the petrographs are essentially ruined. He states, "I have to be very vigilant about that, I mean it takes two days of exposure for a petrograph, so the risk of it raining on one is very high."<sup>29</sup> This also means that he is extremely aware of his environment and of how the weather changes hour-to-hour, day-to-day, year-to-year. The project therefore also functions as a documentation of changing weather patterns, as one year may yield a higher quantity of petrographs based on acceptable and workable days for development.<sup>30</sup> Additionally, Cariou clarifies that even while the plates are out in the sun, he must constantly be conscious of meteorological conditions: "what I tend to do is make them in the morning and then I put them out while I'm writing. But as I am writing I am always looking and listening for the sound of rain or looking for clouds and wind coming...[and] another element is thinking about what is the right time, I look at the forecast and think 'okay, is this the right time to put the petrographs out today' because if I am not home I better not."<sup>31</sup> Cariou's project is therefore as much about the weather as it is about oil, or at least about the symbiotic relationship between the two. The petrographs rely quite heavily on semi-consistent sunshine and the predictability of stable, seasonal weather conditions, which as Cariou points out, is of course not very accurate: "Even when you're talking about what may happen this afternoon let alone what will happen in ten-thousand years."<sup>32</sup>

Importantly, Cariou has discovered through trial and error an unintended, and at times unsettling, contribution from the nonhuman world for this project. In *Open Earth With Pipeline* | **fig. 3** | for instance, a fly landed on the plate during the development process and is now entombed in the petrograph. | **fig. 4** | This contribution from the nonhuman world serves as a reminder of the larger casualties of oil extraction; the fly is not unlike other wildlife being sacrificed in the oil sands as a result of our reliance and addiction to oil.<sup>33</sup>

Furthermore, given that bitumen is made up of once living "things" (organisms such as algae, for instance) and organic compounds (hydrocarbons), the fly on the petrograph is a reminder not only of casualties, but also

27. Ibid.

28. Ibid.

29. Ibid.

30. Since 2014, Cariou has produced roughly seventy 20.3 × 25.4 cm and 21.6 × 27.9 cm, twenty-five 10.2 × 15.2 cm, and twenty 12.7 × 17.8 cm successful petrographs. To date, each of the three years have been relatively equal in productivity for the project (email correspondence with Elysia French April 29, 2017).

31. Warren Cariou in conversation with Elysia French, February 18, 2016.

32. Ibid.

33. For further interpretation, see Cariou and Gordon, "Petrography."

of transformation, time, and the cycle of oil. Bitumen in its natural state can act as a geological artefact, which, as Kirsty Robertson notes, can serve as an “indicator of human impact on the ecology of the Earth...an indicator of the slow violence of massive pollution.”<sup>34</sup> Cariou’s layered documentation of the transformation of the material therefore gestures more toward the cycle of oil and asks us to consider where the material has been, how it has been used, and what will come after oil.

The petrographs are then a product of a unique, circular, and contradictory relationship, that is, the relationship between the human and nonhuman worlds. The revelation that Cariou relies on stable and predictable weather conditions to work with the bitumen and develop the petrographs needs to be considered in relation to the fact that bitumen, as currently utilized in large-scale industrial pursuits, is in fact a leading contributor to increased greenhouse gases and to changing and unpredictable weather patterns. Through his thoughtful and affective repurposing of bitumen, Cariou’s petrography offers viewers the opportunity to see through oil and to contemplate their relationship with it. ¶

34. Robertson, “Plastiglomerate.”

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