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Petrography, The Tar Sands Paradise, and the Medium of Modernity

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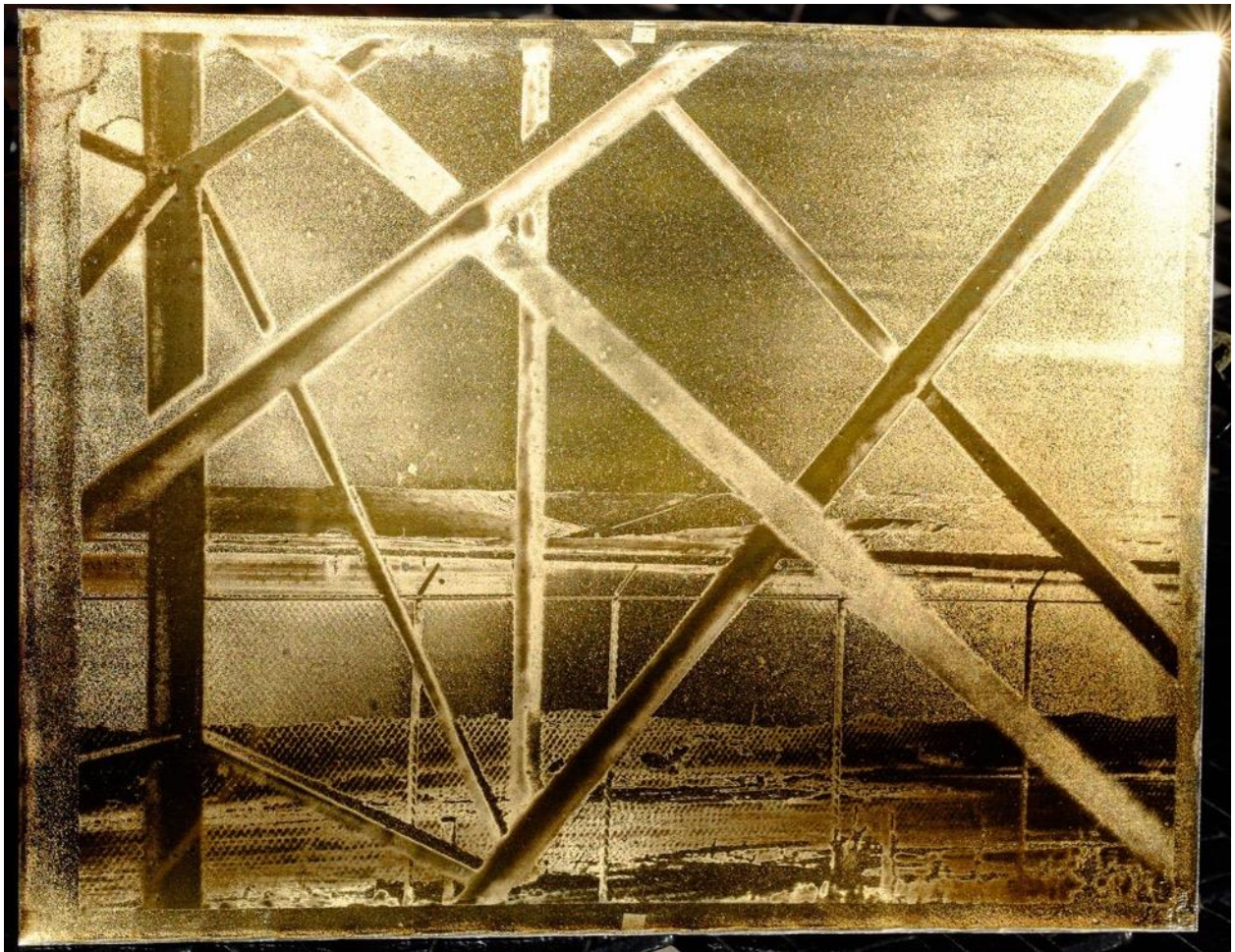
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Warren Cariou and Jon Gordon

*Petrography, the Tar Sands Paradise,
and the Medium of Modernity*

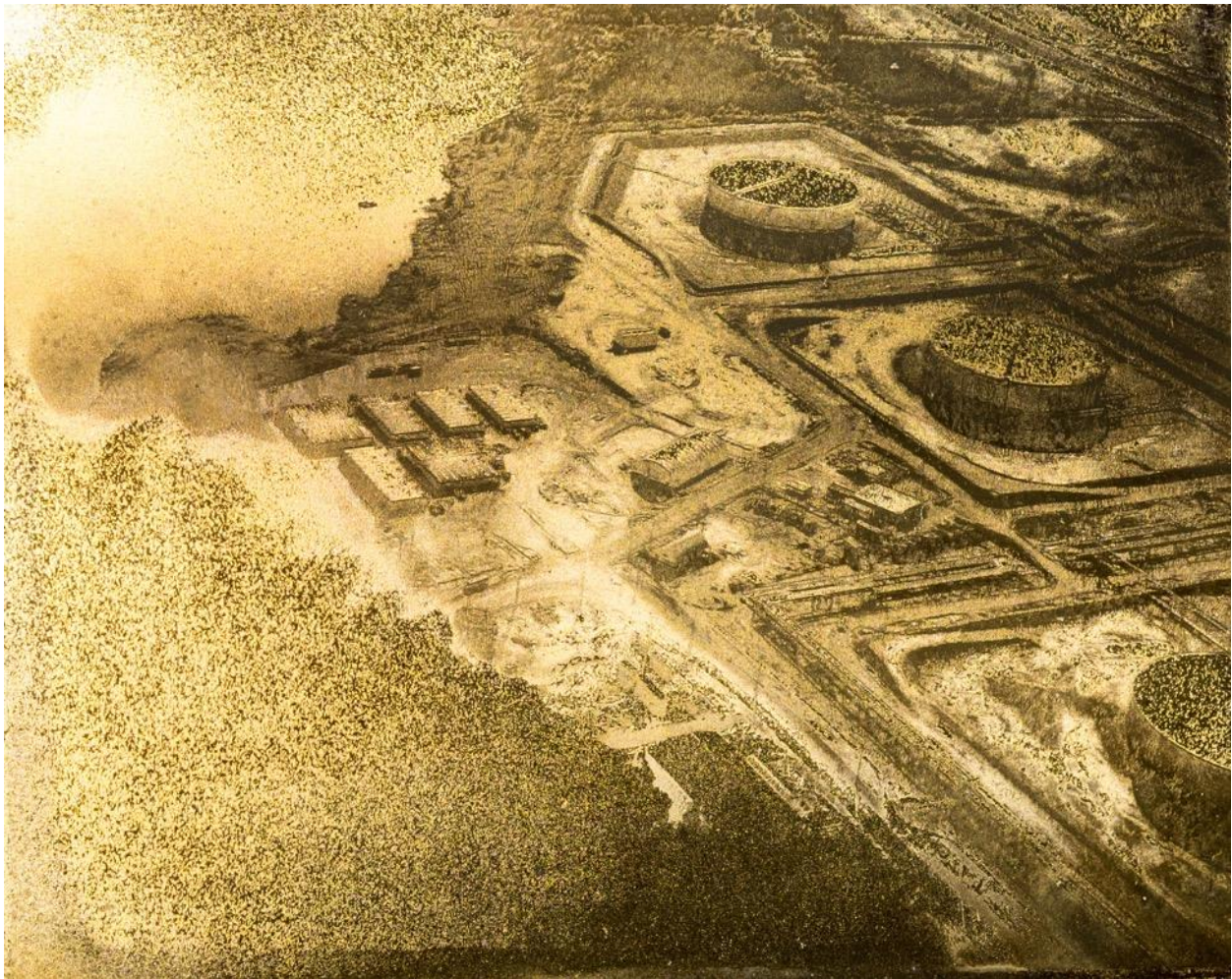


Tailings Pond and Electrical Transmission Tower Supports. V 2 of 3, 2015.

Warren

Petrography is the art of creating photographic images through the action of sunlight upon bitumen, the heavy-oil material that is the source of the petroleum in the Athabasca tar sands. My home town is near the tar sands mining developments in that region, and for several years I

have been writing and making films about the effects of this activity upon the local environment and Indigenous communities. In about 2012, I began looking for new ways of exploring the meaning of petroleum in contemporary culture, and I became interested in working with the physical material of petroleum itself. This search led me to the history of photography and to the story of Nicephore Niepce, who in 1826 created what is known as “the first photograph” using a substance called bitumen of Judea. After some research and experimentation, I was able to reproduce a version of Niepce’s photographic process, creating photos using naturally-occurring bitumen that I gathered from the banks of the Athabasca river. It seemed appropriate to use this repurposed form of bitumen photography to document the process of industrial bitumen mining itself, and the result has been a series of what I call “petrographs,” representing the gigantic machinery and the terrestrial devastation that have become the hallmarks of bitumen extraction. 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.¹

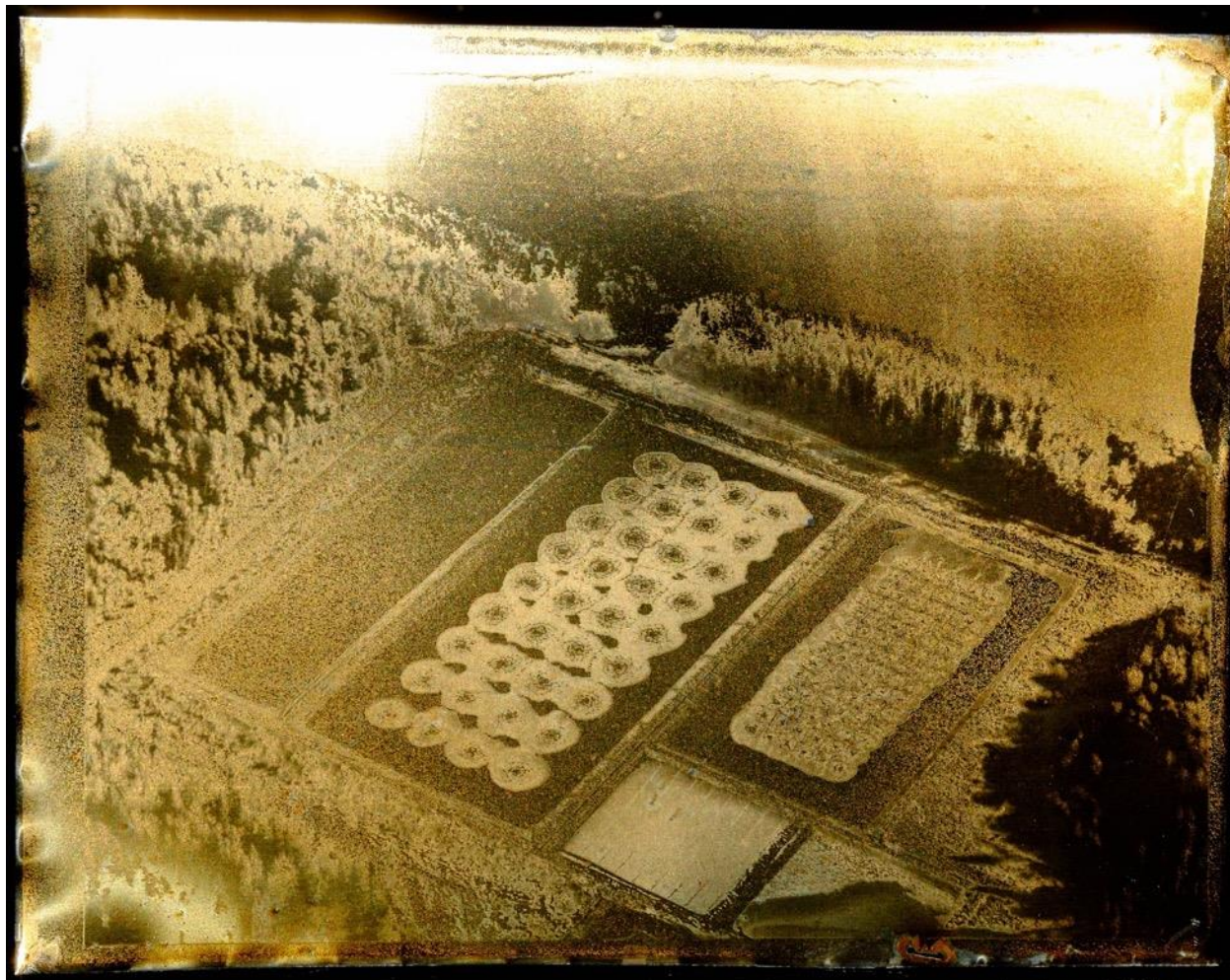


Refinery Occluded by Smoke. V. 1 of 3, 2015.

¹ More detailed documentation of the petrography process can be found on my website, warrencariou.com.

Jon

I have argued elsewhere that literature has the potential to interrupt the relentless justifications and rationalizations of and for the status quo: the status quo of a modern, liberal, technological society in which individuals are free and autonomous and any limits we encounter are conditional, provisional, negotiable. Petrographs—in line with Cariou’s earlier interventions with bitumen in literature, criticism, and film—are a new medium for such interrupting.



Water Treatment Facility on Bank of the Athabasca River. V 1 of 3, 2015.

Warren

In my descriptions of the process of petrography, I often focus on the toxicity of the bitumen I use, and the necessity of taking precautions to avoid inhaling harmful fumes while creating petrographs. I don't know exactly *how* dangerous my bitumen is, but I am aware of the many negative health consequences associated with petroleum itself, and that is persuasive enough for me. Also, the bitumen advertises its toxicity by its smell: it gives off what is probably the foulest odour I have ever encountered, and one that gives me an almost immediate headache when I inhale it. Thus it was very early on in my petrography experiments that I began to wear full respirator gear. Though this is very inconvenient, in another sense I like the idea of working

with a hazardous material, something for which I have to “suit up” before I can even approach it. This makes the process seem like an adventure, or perhaps even a Faustian struggle: in order to create, I have to take some risks—and not only aesthetic ones. The protective gear demarcates the practice firmly from my everyday life, makes the whole process seem like a kind of theatre. When I pull my respirator over my face, sometimes I think of Guillermo Gomez-Pena’s iconic use of gas masks in his transgressive performances.



Big Rig. V 1 of 3, 2015.

Jon

The medium of photography has always depended on the sacrifice of non-human others. The most common process until the popularization of digital photography, the gelatin-silver process, requires gelatin (collagen derived from animal by-products) and silver (mined, often along with other heavy metals; at its peak in 1999, photographic silver accounted for 8304.6 metric tonnes of mined silver). The shift to digital images, often seen as somehow an escape from the materiality of film and the labour of developing, still requires, consumes, exploits, uses otherness (energy, plastics, rare-earth metals, gold, copper, silicone). The speed of digital photography, though, it seems to me, further collapses the space for thinking about this otherness. Digital images are so effortless, so quick, that it seems there are no costs involved—we no longer pay for film; it’s been years since I had any photos printed; even the camera is just an accessory to one’s phone; we don’t think about the components

of which it is made, where they came from, who dug them out of the ground, who processed them into component parts, who assembled them; we don't think about the costs of storing the pictures on a server somewhere, the routers and cables that transfer the data from our phone to Facebook or Instagram or wherever they reside in the seeming immateriality of "the cloud" (see Shukin). Indeed, these costs seem so close to zero that we take thousands and thousands of pictures without thinking until, one day, we find our hard drives full and need to invest in additional storage space or invest the time we thought we had saved through the "simplicity" of digital in slowly sorting and deleting images.



Bitumen Excavator and its Work. V 1 of 3, 2015.

Warren

The truth is that my petrography practice is really not so separate from my daily life at all. That theatre of the mask performs my belief that I can insulate myself from this dangerous substance at the same time as I make use of it, but in a sense that belief is a fantasy. All of us on this planet, no matter how far away we may live from modern energy developments, are subject to environmental toxins that arise from the burning of fossil fuels—and very often, we are not able to sense those toxins by olfactory means or through any other bodily senses. For years I lived less than a block from Portage Avenue in Winnipeg, and I understood at an abstract

level that I was living in the potpourri of exhaust fumes that cascaded off that thoroughfare day and night. But it was easy to forget this, because I couldn't smell the exhaust. Perhaps I simply became accustomed to it over time, or maybe I was already so steeped in the airborne petrochemicals of the contemporary global atmosphere that I didn't sense it in the first place. My point is that we are all living with a certain level of danger as a result of our contemporary addiction to petroleum-produced energy, and yet most of the time we are unconscious of that danger. It was only when I was presented with the thick, rancid physicality of my bitumen that I became more viscerally aware of the risk. I trusted my nose more than my brain. Perhaps I still do, even though I should know better.



Strip Mine, Pipes and Attempted Reforestation. V 1 of 3, 2015.

Jon

Cariou writes of his motivation for developing petrography: “this practice ... is an embodied attempt to utilize petroleum as a medium of representation—to see the world quite literally through a film of heavy crude oil” (Cariou, “Petrography”). We always see the world through a film of heavy crude oil, though we don't realize it: oil is the water in which we swim (see Cariou's “Tar Selfie,” below, for one example of how petrographs help us see this). Imre Szeman and Maria Whiteman write, in “Oil Imag(e)inaries: Critical Realism and the Oil Sands,” “Is it not the case that, in effect,

we *all* live next to sites of oil extraction, even if it is all too easy for many of us to offshore this recognition to remote sites, whether at home or abroad? Do we not all participate in an oil economy?” In terms of artistic production more specifically, Ross Barrett and Daniel Worden argue that though oil is largely secreted out of sight in our society, it is also “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”; thus “the oil industry is as ubiquitous and necessary to contemporary life as money” (xix). Petrographs help us see, or remind us, that all photographs are petrographs, that our culture is an oil culture, that the medium, even in the digital age, is the message.

Petrographs help us see, or remind us, that all photographs are petrographs, that our culture is an oil culture, that the medium, even in the digital age, is the message.



Bitumen Mine Abstract with Pipeline. V 1 of 3, 2015.

Warren

Because smell is so deeply connected to memory, the scent of my bitumen also reminds me of the place it came from, and that is where this story gets more complicated. When I traveled up the Athabasca River from Ft. McMurray with my empty canisters and my little shovel, I thought

I knew what to expect. I had been to the tar sands several times already, and I had seen the spectacle firsthand: nearly unthinkable devastation of a boreal ecosystem, a complete erasure of a landscape that is still the traditional territory of the area's Cree, Dene, and Métis people. Probably almost everyone on earth has seen images of the tar sands by now, but if you haven't, then a quick Google search or some time spent with any of the numerous excellent documentary films on the subject will enlighten you. I was expecting *that* visual assault, plus of course the smell, the overpowering stench of airborne hydrocarbons that surrounds the tar sands mines for miles in every direction. It reminds me of diesel fumes and jet fuel and chimney soot mingled together, with a hint of sulfur that sticks in your throat. I always feel physically ill from that smell when I enter the tar sands zone. I was not looking forward to the headaches, the nausea, the dizziness that I knew would be coming on soon. When I'd asked two of my students to come along on this trip, I had warned them that the place literally made people sick. It was hard to believe that thousands of people actually work in that atmosphere, and that the citizens of the Ft. McKay First Nation and Métis Nation live in the midst of it.

But this time, I was to discover another side to the tar.

We rode in our boat downstream, northward, past the treeless landscape, the gigantic black hillsides of exposed bitumen, the towers and smokestacks. The stench was there, right where I'd expected it, and my headache arrived right on schedule. But at one point, after traveling through miles of the devastation, we came to a bend in the river and we found ourselves in a place where we could no longer see the strip mining, the gleaming pipes, the giant trucks, the smokestacks. Instead there was a beautiful, lush valley with abundant trees, grasses and flowers. And halfway up the valley wall, we saw the dark gleam of exposed bitumen. This was where we decided to stop and look for our sample.

As we stepped out of the boat, I noticed immediately that it was one of the most verdant places I had ever seen in the boreal region. The grass was as tall as our hips, wild roses bloomed in profusion, and the leaves on the trees and shrubs were a vivid shade of green that seemed almost unreal. As if to accompany our arrival, the sun emerged from wherever it had been hiding for the last several days, and dozens of birds began singing. "This must be the Tar Sands Paradise!" one of the students said, and it seemed true, especially after the infernal landscape we had traveled through. We waded through the grass toward a tiny stream that had formed at the base of the hillside, where we could see rivulets of water flowing down the black exposed bitumen. Floating on this meandering trickle was a thin and iridescent film that had the unmistakable sheen of petroleum. We dug our bitumen sample right at the edge of this stream.

It was only after we had filled our containers that I noticed something about the smell. The tar scent was still there, of course, but it was no longer offensive. It was only a spicy element in the melange of verdant humidity, grass-scent, wild-rose blossoms and post-rain freshness. And suddenly I realized: *this stuff was natural*. I had known that intellectually of course, but somehow it was different to sense it in an embodied way, to see and smell the tar in what must have been its original context, before the oil companies came to the Athabasca and altered

nearly everything. Yes, the bitumen of the tar sands is natural: it is part of an ecosystem that works, or can work, according to its own logic.



Suncor—Smoke, Steel and Water. V 1 of 3, 2015.

Jon

With petrographs, in working to see the image in the bitumen, which is not always apparent, as from certain angles the petrograph seems to be black emptiness, the viewer also sees him/herself, and that reflection then exists both in the bitumen used to create the petrograph and the scene of bitumen extraction that the petrograph depicts. Artists, art historians, and art critics have pointed to the problematic relationship between realism and photography; however, for my purposes here, I simply wish to suggest that while it is easy to uncritically consume photographs as presentations of reality, petrographs refuse to be consumed in such an uncritical manner. 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. This disrupts the typical effect of photo-realist representation in which the viewer assumes the image shows a "reality" out there, distant from and possessed by the viewer.



Bitumen Strip Mine with Pipeline and Truck Turning Loop. V 1 of 3, 2015.

Warren

Perhaps it would be easier for me as an activist if I hadn't experienced that revelation in the Tar Sands Paradise, if I could maintain a rigid boundary between nature and petroleum. But as I think more about it, I've come to believe I learned something important there. Before that day, I thought of the tar sands as unequivocally dangerous and ugly, but that idea was based on a flawed perception, a belief that the place was already unredeemable because of what had happened to it. The truth of the matter was that the tar sands were not monolithically disgusting or dangerous; they were instead startlingly ambiguous. The black hillsides and gleaming white berms of leftover sand that we had passed by earlier were almost entirely devoid of life, and yet here the tar-saturated soil seemed to be supporting an incredible abundance of plants and animals. How could this same substance be associated with such radically different prospects for life?

I remembered that bitumen was composed of organisms that had once been alive and had been transformed into petroleum long after they died, and I thought of William Blake's line in *The Book of Urizen*: "for he saw that life lived upon death." That had always seemed a grim

sentiment to me, but now in this context it seemed almost comforting, a reminder of the necessity of natural cycles, the flow of energy through different beings and different forms of matter. It made me realize that the toxic and the beautiful, the dead and the living, are intimately connected. Perhaps we need to remind ourselves of that if we are to live in a respectful way on this planet.

I thought also about the Indigenous people who have lived and traveled on this river for so many generations, back when all of the riverbank looked like this beautiful place where I was standing, when the air smelled of this pleasant spice instead of a cauldron of chemicals. Some of those travelers were probably my own Michif ancestors, who worked as voyageurs on many of the fur trade's western routes. I knew that the Cree, Dene, and Métis peoples of the Athabasca had their own important use for the tar: they used it to seal their canoes. They understood that there was something valuable in this material, that it had a kind of power or unique properties that could help humans if they knew how to use it. They would have known where to find the best sources, what the best time of year was, how to process the sandy tar to get the particles out of it. All of this would require intimate knowledge of the land. Perhaps there was a ceremony involved in its gathering. There may still be one today, but if so, I don't know it. I hope there are Elders somewhere along the river who have kept that knowledge.



Bitumen Mine Crossroads. V 1 of 3, 2015.

Jon

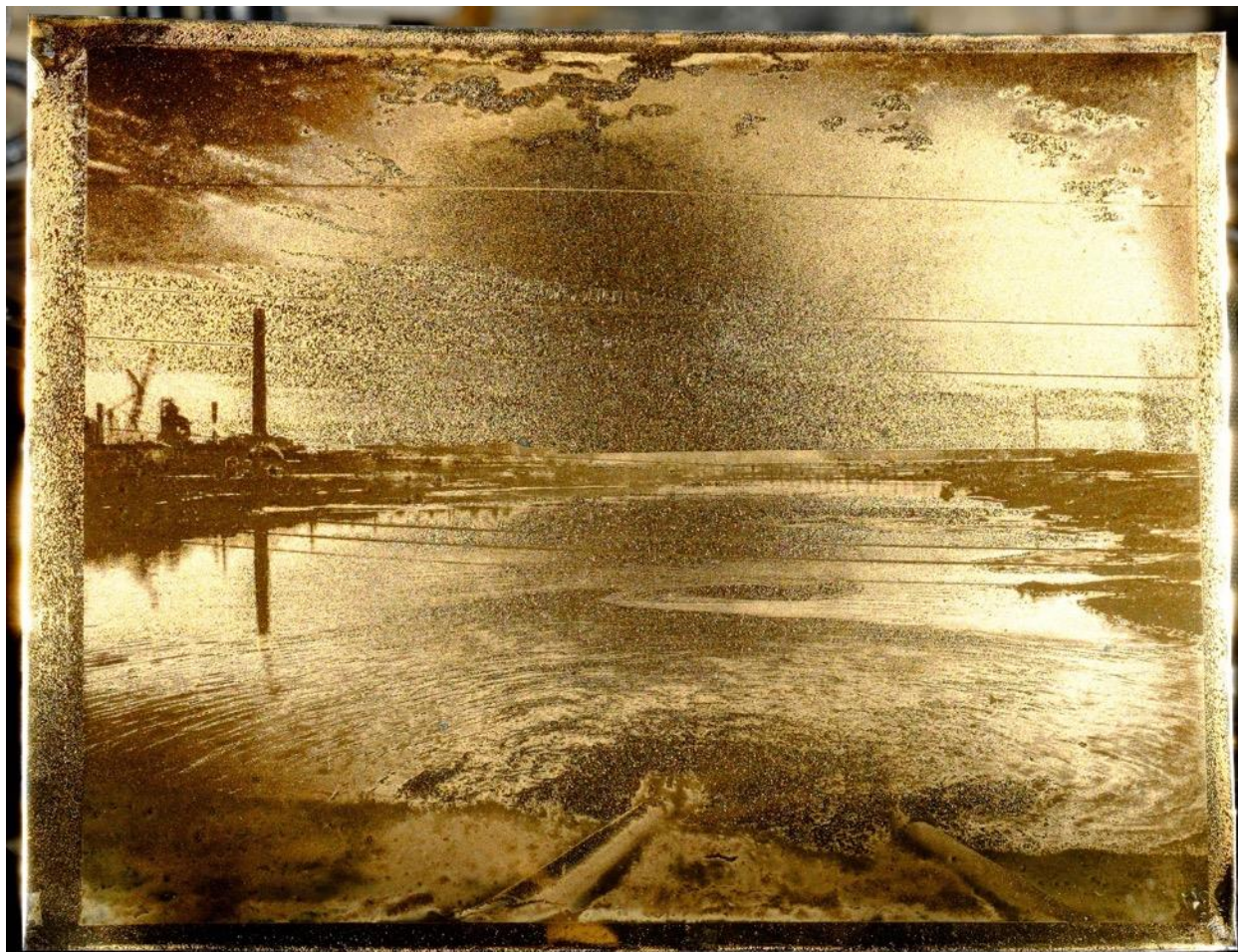
I rarely think about the materiality required to produce pictures. Petrographs require the viewer to look again, to look harder—“What is that? Just tilt it a bit. Hold it up. There. Look!”—and to slow down. The consumption of the images, then, retains or recreates some of the labour involved in their production. In contrast to the instant and pervasive nature of images today, where everyone walks around with a powerful digital camera in her pocket and can publish pictures and videos to the Internet instantly, petrographs are slow. Interestingly, the process of making a petrograph begins in a way similar to the extraction process used in commercial bitumen mining: with hot water. Cariou adds bitumen to boiling water and boils “for hours, periodically skimming the tar that rises to the surface of the water” (Cariou, “Petrography”). The hot water extraction process, used in bitumen mining operations, similarly uses vats of hot water and skimming apparatuses for removing bitumen from the matrix of sand, water, and clay in which it is locked, but on a much larger scale.

Once he has the tar, Cariou mixes it with oil of lavender, spreads it on a highly polished metal plate, and heats until it sets. Next, a transparency created from a digital image is placed on the plate and exposed to direct sunlight for about 16 hours. After exposure, the transparency is removed and the image is “developed using a mixture of kerosene and lavender oil.” Cariou notes that “On average, only about 30% of petrographs remain intact through the developing process. Those that do survive this treatment are then set aside in a well-ventilated area for about two months in order for the kerosene to fully evaporate and the bitumen emulsion to harden. At this point, the petrograph is finished and ready for framing and display” (“Petrography”). It seems significant to me not only that the process is slow, which is counter to the culture of speed that requires ever greater quantities of energy to propel it forward, but also that there is no guarantee of success. We might then think of Cariou’s process as the history of bitumen extraction, or maybe even of our scientific-technological society, in reverse. People like Karl Clark spent years developing and perfecting the hot-water extraction process that made bitumen extraction economically viable through the painstaking application of scientific method, but Clark died weeping at the destruction wrought by the first large-scale extraction plant (Clark Sheppard 89). Cariou starts from a recognition of “the devastation that tar sands production [has] brought to the Aboriginal communities of Alberta and Saskatchewan” (“Petrography”) through the single-minded pursuit of a particular vision of the world—nature as resource, object, at the service of humans. He then takes the hot water extraction process and turns it against itself: instead of making bitumen serve his purposes, he enters into a relationship with it. Cariou notes of the low success rate in creating petrographs:

Although this unpredictability has created some frustration in my attempts to systematize and refine the process of petrograph creation, I have come to embrace it as a necessary and vital part of the medium. I like to think of it as the tar’s contribution to the image. I can’t make the tar do something it doesn’t “want” to do, but that doesn’t have to be viewed as a drawback or limitation. Instead, the tar’s contribution is what makes each iteration of an image visibly unique. And I like how this disrupts the idea of artistic intention and reminds us that the medium *always* has a great deal of influence on the way an image is created. (“Petrography”)

This seems to me precisely the opposite of the industrial approach to the substance, which is to make it do what we want it to do, predictably, consistently, and profitably, even though there is always an unruly excess leaking out at the edges—into (and out of) tailings ponds, smokestacks, and cracks in the cap rock of in situ injection sites (see Cariou’s “Wastewest: A State of Mind” for more

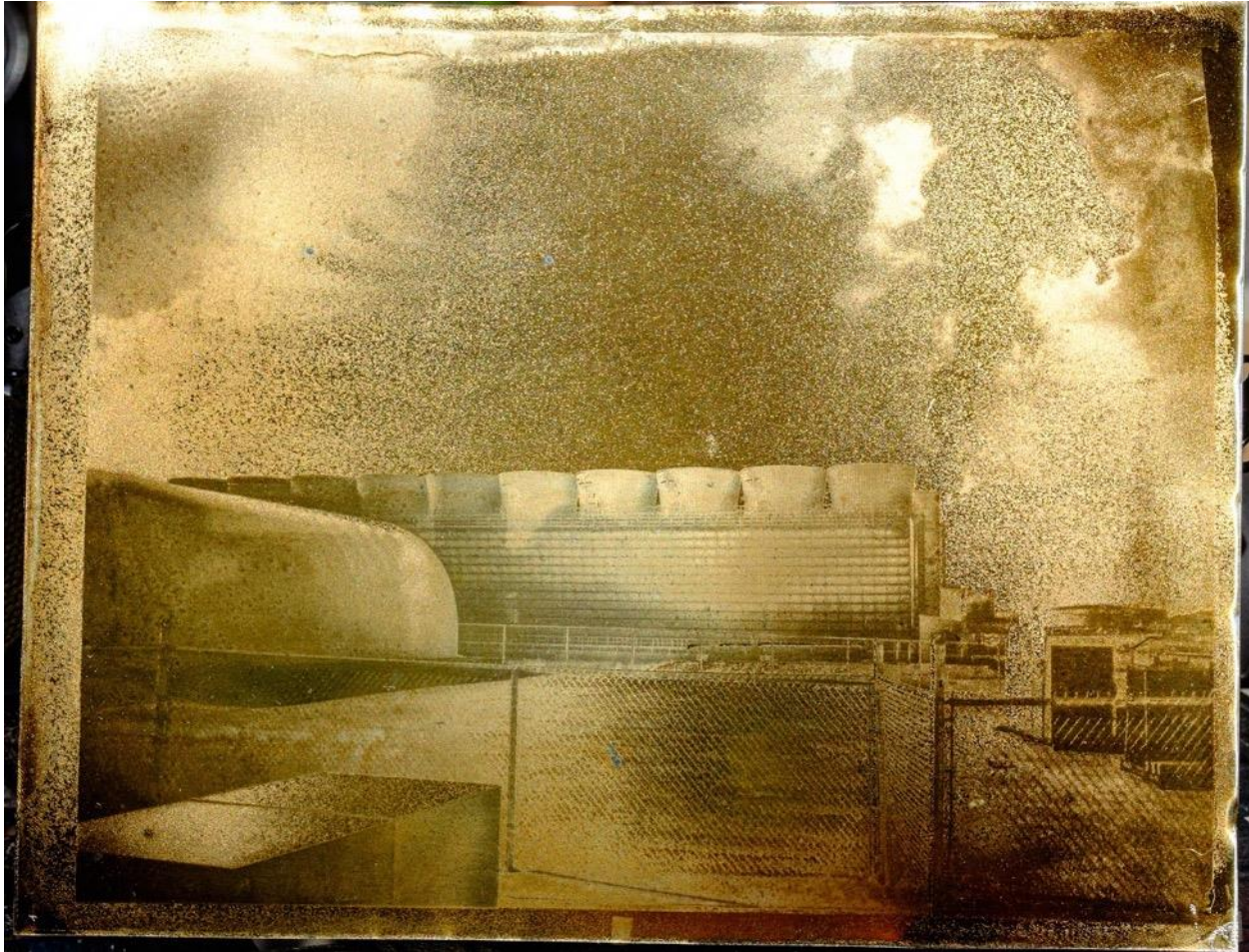
on this idea of excess). It is also the opposite of the representational history of bitumen: Mike Gismondi and Debra Davidson show how “well over 100 years of visual storytelling [about bitumen] has established an authoritative industrial discourse in support of corporate investment, government assistance, the inevitability of commercial-scale exploitation, and ultimately human dominance of a passive nature” (39). Cariou repurposes bitumen to disrupt that vision.



Tailings Pond Inlet with Whirlpool. V 1 of 3, 2015.

Warren

Since that day of discovery on the Athabasca, I sometimes think of bitumen as a kind of medicine. It is gathered from the land, just as someone might gather roots or herbs or other valued substances, and it requires particular knowledge to use it properly. Like many medicines, it is subject to misuse and abuse when it falls into the hands of those who don't have proper respect for its power. In Eden Robinson's novel *Monkey Beach*, the Elder Ma-ma-oo refers to a traditional Haisla medicine called oxasuli when she tells her granddaughter Lisa Marie, “You have a dangerous gift... It's like oxasuli. Unless you know how to use it, it will kill you” (371). I think bitumen might fall into a similar category. I am reminded, too, of tobacco, which has a sacred spiritual value for many Indigenous people, but when transformed in the machinery of capitalist modernity, it becomes a harmful, toxic, addictive substance. When used improperly, it can kill you.



Cooling Towers. V 1 of 3, 2015.

Jon

In addition to the readings suggested above, Cariou's ghostly images of industrial operations might also be understood as the narrative of bitumen development. As the viewer's gaze crosses the petrograph one sees first a blank emptiness; then, out of the blackness an image appears, only to fade away again as the viewer's eyes continue moving past. This experience might be read as the past, present, and future of the bitumen industry. First, in the past there was a blank emptiness of boreal forest. I see this not as "terra nullius" or the "white spaces on the map" of colonial adventure, but, rather, a fully filled black space, an intact human culture that was not visible to the "pioneers" of the industrial capitalist colonial nation.² For those pioneers this black space appeared, if it was recognized at all, mainly as an obstacle to accessing the hydrocarbons beneath it. Second, in

² As Rick George, former president and CEO of Suncor, has written, "The most appealing feature of the oil sands (when discovered) was the fact that they were there to be taken" (Smith 59), a statement which ignores Indigenous inhabitation of the area and the treaty process which established a framework for Indigenous-settler relations, a process that is ongoing in various ways, including court cases challenging the approval process for bitumen projects, a process which, First Nations argue, has involved the settler-colonial government approving industry's taking of the "oil sands" without the forms of consultation required by the treaties.

the present a huge industry appears marking the triumph of a certain form of human endeavour and ingenuity as well as the destruction of natural and cultural systems and a failure of human imagination. Third, in the future this industry will disappear just as the image in the petrograph does when the viewer shifts her gaze. Thus, viewing a petrograph asks the viewer to imagine a future after bitumen, after oil, a future that might be a fading to black for human culture or might be something else.

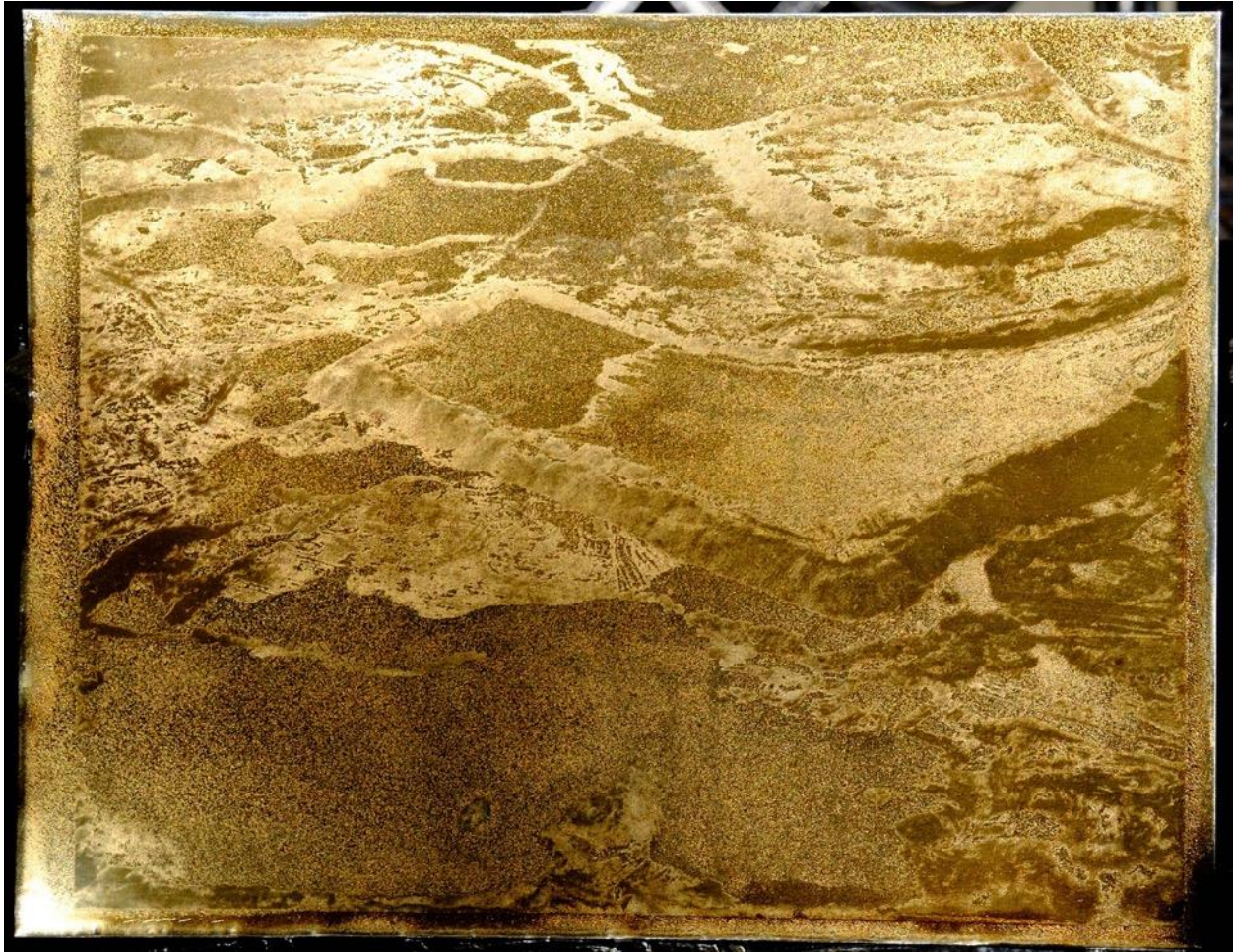


Decommissioned Bucketwheel Excavator. V 2 of 3, 2014.

Warren

So: how do we make a change from using petroleum in destructive ways? How do we begin to think of it as a substance with a different spirit, perhaps a more generative potential? I think we can learn a great deal from the Indigenous people who have lived on the Athabasca for generations and generations, who have developed intimate and sensitive ways of relating to that land and each particular gift that it offers. I still have a long distance to go in my learning process in that regard, but it is something I am dedicated to doing. In the meantime, instead of using the bitumen to seal a canoe, I have used it to present a particular perspective on energy in modernity. I have used it to reveal something about what we are doing to the land. I have

also tried to demonstrate that this powerful material can be utilized for something other than fuelling the fantasies of modernity.



Strip Mine Horizon to Horizon. V 1 of 3, 2015.

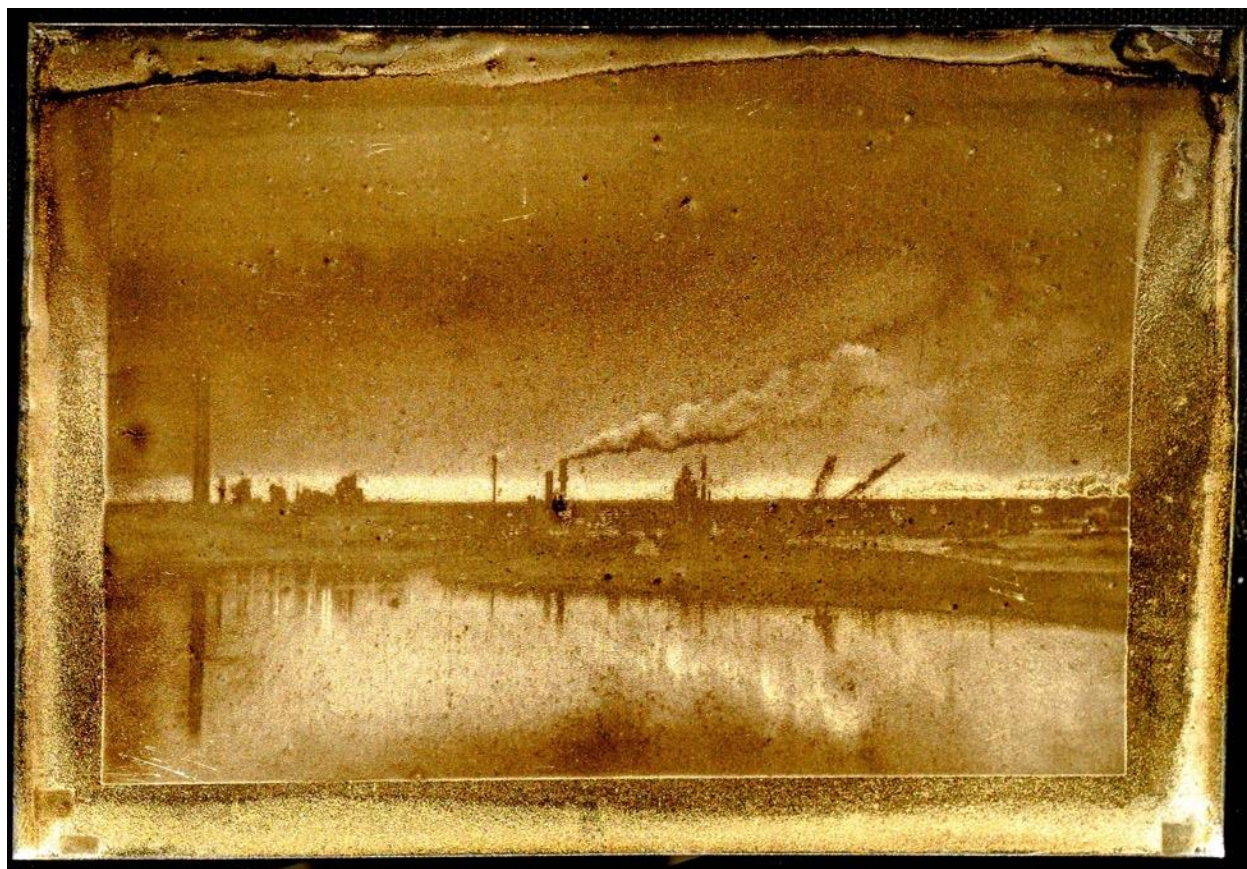
Jon

Petrographs make us look at bitumen differently, in multiple ways. Szeman and Whiteman argue that the most familiar images of the oil sands are “aerial shots whose intent is to emphasize the sheer size and scale of those sites at which bitumen is extracted” and that

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. Or such seems to be the presumption, based on visual representations of the oil sands to date.

Petrographs can be read this way too, but they also, I think, suggest other readings. Some of Cariou’s petrographs are aerial shots, giving a sense of the size of the development, but many are not, giving ground-level perspective. Also, unlike the large format images of Edward Burtynsky or Louis Helbig, petrographs are small (4x6” or 8x10” mainly). As such they do less to invoke the

terrifying scale of the project as sublime.³ Further, 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 than most bitumen photography.

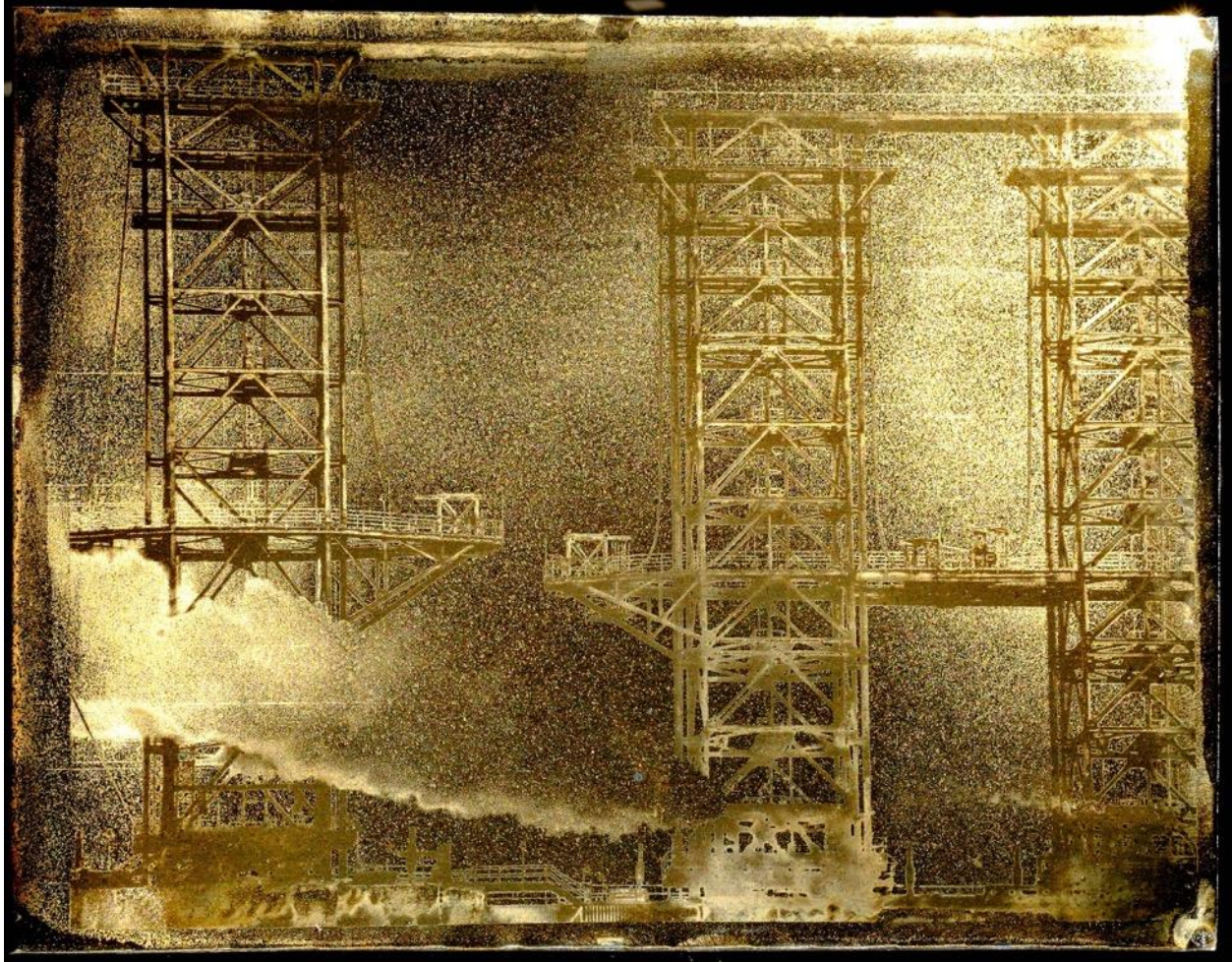


Syn crude Tailings Pond Reflections #2. V. 3 of 5, 2015.

Warren

Even though I have tried to utilize bitumen in a way that diverts it from the toxic trajectory that modernity has given it, that doesn't mean it has become safe, in my own petrography practice or elsewhere. I still need to be very careful with it, because I know it can be dangerous. But I think that with the proper respect and knowledge, bitumen can be adapted toward a use that has an honesty and even a beauty about it. One of our biggest challenges today, in the Anthropocene, is to find new (or perhaps old) ways to approach this dark material that has created so much possibility in the modern world, yet is also associated with enormous damage that will already continue for generations to come. We need to establish a different relationship with it, one that is more respectful of its power for destruction as well as its potential for creation. I hope petrography is one small step in that process.

³ For more on representations of the oil sands as sublime see Szeman "Crude Aesthetics" (especially 361-62), Kover "Are the Oil Sands Sublime?", and Zuromskis "Petroaesthetics and Landscape Photography."



Suncor Structures Viewed from the Athabasca River. V 1 of 3, 2015.

Jon

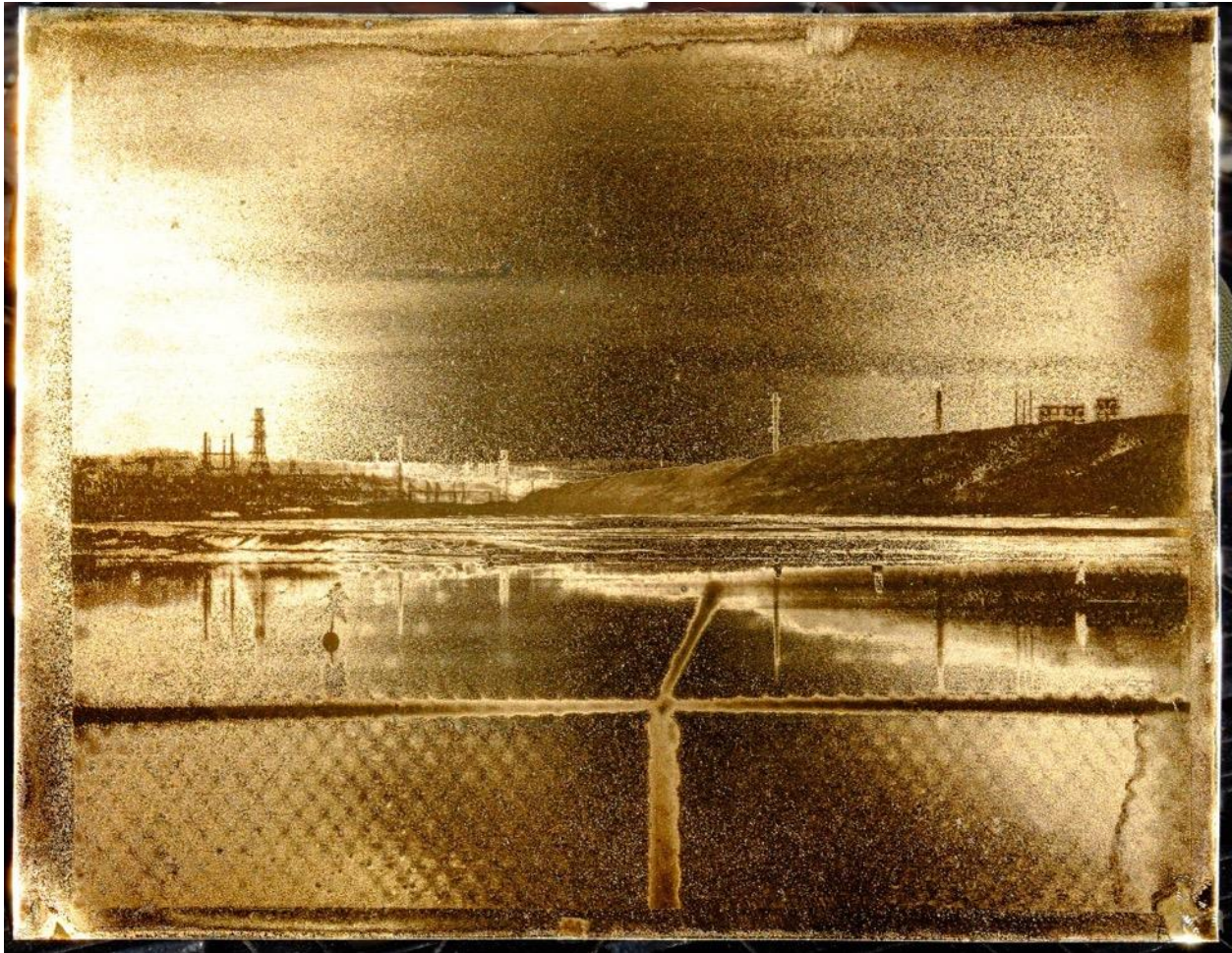
Histories of the Fort McMurray region tend to start with accounts of a man named Wa Pa Su (or Wa Pa Sun or Wapisiw) bringing “a sample of oil laden sand” to Hudson’s Bay Company explorer Henry Kelsey at York Factory in 1719 (Huberman 4). The representation of this moment of first recorded contact with the Indigenous inhabitants of the area does two things. It provides an origin and teleology for the narrative of the region, one that will reach its climax in our own time when the bitumen can be displaced from the sand. It also implies continuity with Indigenous practices: Natives burned the sands and used them to seal their canoes; contemporary uses are simply logical and natural progressions of Indigenous ones, operating on a larger and more efficient scale. Robert Bott, in “Canada’s Oil Sands,” expresses it this way: “Aboriginal people were already using oilsands bitumen when the first European explorers arrived in the 18th century” (11). Cariou’s notion of “collaboration,” though, posits a fundamentally different relationship than the “use” described by Bott. Rather than “using” and “using up” bitumen faster and faster and more and more efficiently and exerting (seemingly) firmer control on its use and exchange (even as the uncommodifiable excess squeezes and oozes out), Cariou’s collaboration with the substance puts him in a position of dependence on the desires of the medium. This shift (return?) in the human stance toward bitumen suggests the possibility for our relationship to bitumen to be something other than ever increasing acceleration, of taking more and more, until the inevitable collapse, the fading to black of human

culture. The blackness of the petrograph suggests this possibility too; maybe next time we look we will see something other than the industrial apparatus of bitumen extraction; maybe the images of those apparatuses will stand as haunting reminders of a moment in human history when we forgot the necessity of collaborating with the land on which we stand.

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## Brief Reflections on Selected Petrographs



Fenced-in Tailings Pond with Bitu-men. V 2 of 3, 2015.

### 1. Fenced-in Tailings Pond with Bitu-men

#### Warren

This image depicts a vista that became visible in 2009 when a new road was built between Syncrude and Suncor. I was able to travel on this road within a few days of its completion, and I was struck by the new perspective that it allowed on the Suncor plant, which is mostly hidden from the highway. Suncor is visible here in the background as a series of towers, some of them carrying high-voltage wires. Bitumen processing requires large amounts of electricity in addition to the enormous quantities of petroleum-based fuels that are used to heat the materials. In fact, the spot where I took the original photograph that became the template for this petrograph was directly beneath a huge high-voltage tower that carried multiple wires which gave off a sizzling, cracking sound (see also “Tailings Pond and Electrical Transmission Tower Supports”). This was one of the most menacing and uncomfortable locations I have visited in the tar sands zone. The tailings pond in the foreground was covered in many places with thick black mats of tar. The orange-clad scarecrows—nicknamed “bitu-men”—are intended to



prevent birds from landing in this material, but they are not always effective. Hundreds, if not thousands, of birds have died in bitumen tailings ponds in the last decade alone. There was a dead sparrow on the ground in front of me when I took this picture.

### Jon

To add to Warren's point about bird deaths, University of Alberta biologist Colleen Cassady St. Clair, in her study of tailings pond bird deterrents, estimated that 200,000 birds landed on the tailings ponds during the 2013 season of her research project, with 1% of those becoming coated with bitumen and dying. St. Clair noted that, even though that is a small percentage, "Environmental regulations require the companies to keep birds off the ponds" (Pratt).

For me, a key element of this petrograph is the fence in the foreground, and the multiple levels of containment that calls to mind. Obviously, the fence is meant to keep people (and non-human animals) away from the water. The pond is meant to prevent the process-affected water and residual bitumen from returning to the watershed. The bitumen and air cannons are meant to serve, however ineffectively, as a kind of lid on the pond (keeping birds from landing on it). The petrograph, though, gives the sense of how this containment fails. Bitumen, and its residues and components, permeate the landscape. Warren gives wonderful descriptions above of bitumen's noxious odour. Though we can't see the smell, the haze of petroleum through which we see this image gives a sense of the chemicals coming off of that pond, of another failure of containment, despite the fence, the bitumen, the air cannons.



**Tar Selfie. V. 1 of 2, 2014.**



## 2. Tar Selfie

### Warren

In my initial petrography experiments it seemed that the medium could only represent images with sharp lines and patterns, rather than shading and half-tones. This lent itself to depicting well-delineated images of bitumen mining machinery and the scored markings of strip-mined landscapes, but I believed it would not be possible to represent human figures in a recognizable way. Thus, it was relatively late before I attempted to create this image of myself. I was surprised to see that a very recognizable portrait image was possible with this process. “Tar Selfie” preserves the mid-tones and shadows quite well, though the highlights show as a kind of

*“Tar Selfie” has become one of my favourite petrographs because it reminds me of my own embeddedness in the politics and economics of oil.*

mask on my forehead and cheeks. It has become one of my favourite petrographs because it reminds me of my own embeddedness in the politics and economics of oil. As I argue in my article “Tarhands: A Messy Manifesto,” there is no pure,

untainted place from which to critique petro-modernity: virtually everyone today is implicated in oil somehow—even those of us who are critical of it. So in a sense, this petrograph reveals me as a different kind of “bitu-man” than the orange scarecrows installed in the tar sands tailings ponds. Similarly, all of my petrographs (no matter what is depicted on them) superimpose the viewer’s own face upon the petrographic image, because petrographs are essentially tar-coated mirrors. I like this because it suggests to the viewer that we are never fully separate from the effects of petroleum extraction and consumption. There is a Lacanian dimension to this staging of self and bituminous other. In the case of “Tar Selfie”, my tar-avatar makes me literally both the subject and object of petroleum, portraying the penetration of oil into my own body and my psyche.

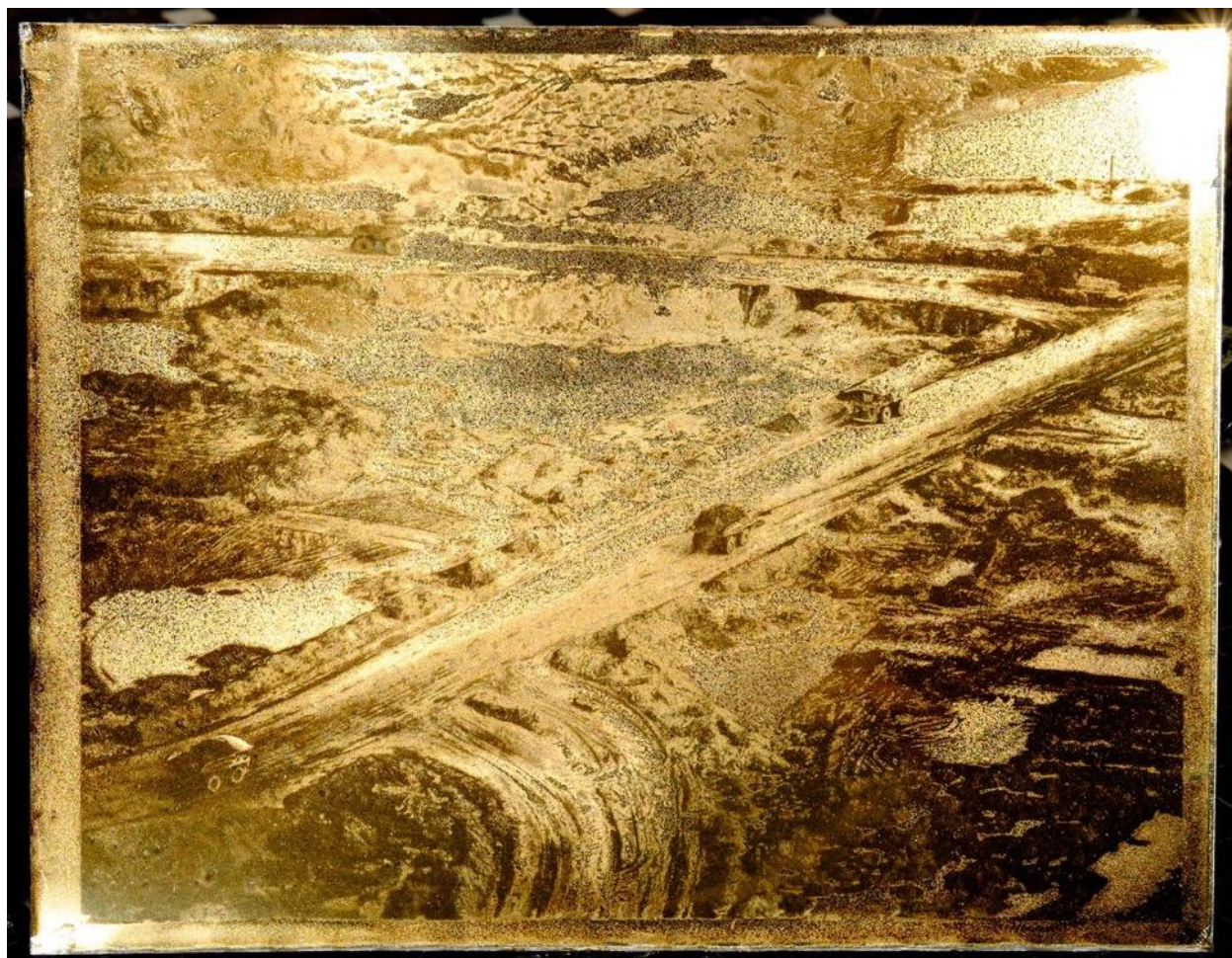
### Jon

This petrograph puts me in mind of *The Picture of Dorian Gray*. If we think of Dorian in Oscar Wilde’s novel as turning his life into a work of art and Basil’s painting of Dorian as suffering the consequences of that aestheticization, then we might think of Cariou’s “Tar Selfie” as visualizing the consequences, normally hidden to us, of living our lives as petro-subjects. Petroleum doesn’t offer perpetual youth, but it has offered many people unprecedented freedom and power, in the form of seemingly limitless energy. It is a freedom and a power, though, that depends on a highly toxic, addictive, and carcinogenic substance. All petrographs reveal hidden consequences of bitumen extraction—by showing particular destruction of locations within the boreal ecosystem, and, as Warren notes above, by reflecting the viewer’s face in the images of that destruction—consequences we normally prefer not to think about. But “Tar Selfie,” in showing a human face looking back at us, also reminds us that, in addition to the forest, the muskeg, the fens, and the rivers sacrificed or threatened by bitumen extraction, there are also people dying as a result. The elevated cancer rates for people living downstream from bitumen extraction projects are the most direct casualties, but “Tar Selfie” moves beyond that immediate context. It might prompt us to think of how our



consumption of petroleum contributes to the cancer and death of individuals downstream; it might also cause us to see our own lives and the lives of our family and friends as coated in bitumen.

Picking up on Warren's point about bitumen as a kind of medicine, not unlike tobacco, which, when used improperly, can kill, I'm also reminded of the images used as warnings on cigarette packages, of lung disease, oral cancer, and imperilled small children (with the message "tobacco smoke can harm your children"). Maybe we need petrographic mirrors at gas pumps, so that when we fill up we are forced to look at our own faces reflected through a petrochemical film. The picture of Dorian Gray makes Dorian's sins visible; petrographs might, similarly, help us see the sins of our culture. The challenge, then, would be in preventing this recognition from leading to further addiction, denial, and suicide (as happens in Wilde's novel).



**Bitumen Mine Landscape with Five Trucks. V 1 of 3, 2015.**

### **3. Bitumen Mine Landscape with Five Trucks**

#### **Warren**

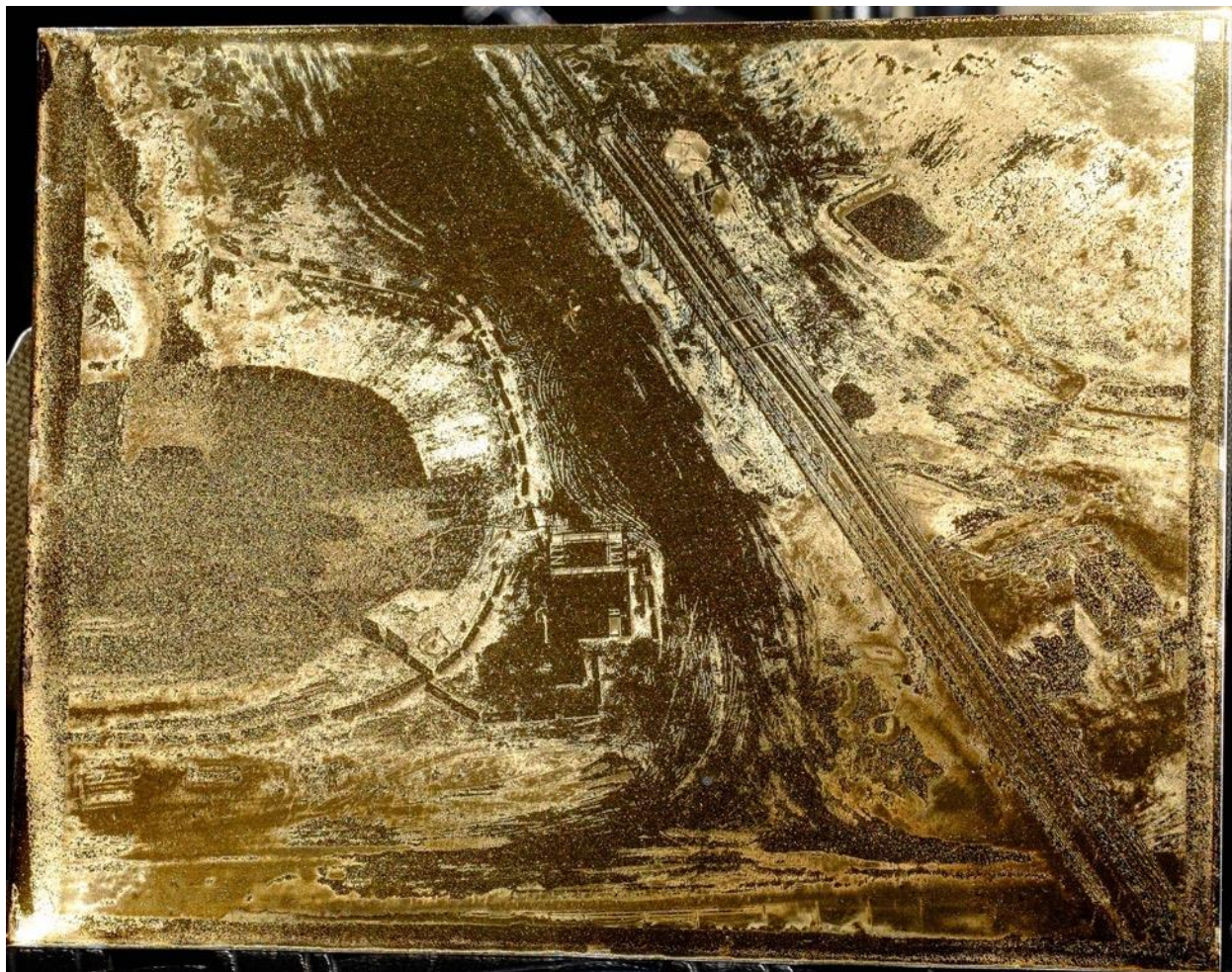
Like many other photos of the Athabasca tar sands, this image provides an aerial view of the bitumen extraction process. There are practical as well as aesthetic reasons that photographers and documentarians have so often chosen the aerial perspective for this subject. First, there is

very little access to these mines from the ground level, and most of them are not visible from public roads or even from the river, which leaves airplanes and helicopters as the best tools for seeing the vast majority of the mined surface. Also, the aerial perspective allows a viewer to get a better understanding of the immense scale of these mining operations. However, I believe that aesthetic considerations are at least as compelling as the practical ones for many photographers who choose to take aerial photos of this place. When seen from the air, the bitumen strip mines become almost ready-made artworks. The patterns of excoriated land, and the ways in which the ever-changing light interacts with them, are visually fascinating and sometimes gorgeous, even at the same time as they are horrifying. They are beautiful wounds, and viewers are fascinated by this combination of aesthetic pleasure and the horror of suddenly-revealed violence. This doubleness—as it is shown in Burtynsky’s *Oil* photos and in Helbig’s *Beautiful Destruction* series, among others—arises out of a tension between abstraction and documentation. I am conflicted about using aerial images, because I fear that the viewer’s distance above the devastated landscape might make it seem less real, more of a spectacle than an environment. However I felt it was worthwhile to include several aerial views in my petrographs because there is simply so much of the mining process that cannot be seen in any other way. I have tried to include at least some elements in each aerial view that will give a sense of scale and orient the viewer toward a recognition of the physical reality of these gigantic scars on the earth. Here the element of scale is provided by the heavy-hauler trucks, each of which carries over 300 tons of bitumen and is about the size of a two-bedroom bungalow.

## Jon

Warren makes a good point about the necessity for aerial images of the bituminous sands’ sacrifice zone: without them most of the destruction would be invisible to most people and the scale of the development would be incomprehensible, for even though the impacts of development cannot be contained (as we both argue above), most of the impacts can be kept out of the view of a person on the ground. However, despite the valid reason, even the need, for such images, I wonder to what extent viewers really get a sense of scale from aerial images. Do these heavy haulers really help us understand the scale of development? We can read that they are the size of a bungalow, we can be told that they carry 300 tons of bitumen per load, but they still look like toy trucks. This could be an image from a child’s sandbox. I think it is important, in this respect, that petrographs be viewed as a series. An individual petrograph might seem to condense the consequences of capitalist modernity (as Szeman and Whiteman note in the quotation above), but seeing them in series disperses this potential. I also think the prominence of elements that cross the frame in many petrographs is significant. The haul road in this petrograph goes from somewhere to somewhere else, and might prompt the viewer to consider what is beyond the frame. The pipeline, in the image below, similarly has an origin and a terminus. Unlike some images of bitumen development—which emphasize abstract patterns that fill the frame, and seem to continue beyond the frame to, apparently, infinity—the road, here, leads the viewer to imagine the processing plant these trucks are driving toward, the pipelines transporting the diluted bitumen to southern refineries, the other, smaller, trucks that will take the refineries’ products to markets, and, particularly, to gas stations where we will pump it into our vehicles.





Open Earth With Pipeline. V 1 of 3, 2015.

#### 4. Open Earth With Pipeline

##### Warren

This image depicts a relatively small tailings pit in the middle of an active bitumen mine. The pit, and what appears to be a pump house beside it, is encircled by a set of concrete barriers to prevent trucks from venturing into this area. In a sense, the theme of this image is the impossibility of containment. The small pit is not large enough to hold all of the residual tar from the surrounding landscape, and the barrier around it is entirely porous, with large spaces between the individual concrete pieces. On the right side, the image is intersected by a large pipeline that is probably transporting a slurry of bitumen and heated water toward the processing plant. In July 2015, a pipeline similar to this one leaked more than 5 million litres of bitumen slurry into the environment near the Nexen processing plant, less than 100 kilometres from the depicted location. Even the most highly refined technologies for mining and transporting petroleum are not capable of achieving fully reliable containment. Even when pipelines don't leak, the tailings ponds themselves are open to the air and thus birds are susceptible to them—as happened in 2008 when approximately 1600 ducks died in a Syncrude

tailings pond. The contents of these reservoirs are never fully contained, even when the ponds work exactly as they are supposed to. This particular petrograph illustrates that idea in an embodied way: a small fly landed in the emulsion when the petrograph was being developed, and it ended up being entombed on the surface (see detail below).

## Jon

The detail showing the fly reminds me of Warren's quote from Blake—"life live[s] upon death"—and might prompt the recognition that bitumen is itself the product of degraded prehistoric organisms, "sun baked algae and plankton" partially digested by bacteria over a couple hundred million years (Nikiforuk 12). It is the death of these creatures on which our culture currently lives (and through which or in which we see petrographs). If this recognition calls us into relationship with bitumen, as Warren and I both argue here, then does this idea risk becoming industry's next marketing campaign, and how should we respond when it does? (Indeed, I think we can already see elements of this type of appropriation in recent campaigns such as Suncor's "Come See What Yes Can Do.") That is, industry can say, "we have a relationship with bitumen. We know this stuff, and we know how to use it responsibly." And, when we are reminded of the sacrifices required by that use, we can rationalize it by saying "life lives upon death: in order for me to live others must die," or "even the most responsible uses, even the most collaborative uses, require sacrifice." This fly dies as a result of the petrograph's creation. Some ducks die as a side effect of our choice to drive cars. How do we compare the life of a fly to that of a duck to that of a person?

In *The Gift of Death*, Jacques Derrida states, "I am responsible to any one (that is to say to any other) only by failing in my responsibilities to all the others, to the ethical or political generality. And I can never justify this sacrifice, I must always hold my peace about it. Whether I want to or not, I can never justify the fact that I prefer or sacrifice any one (any other) to the other" (70). I take this to mean that I can't say I prefer petrographs to tailings ponds, that I can't justify the sacrifice of the fly over that of a duck. Derrida goes on to state

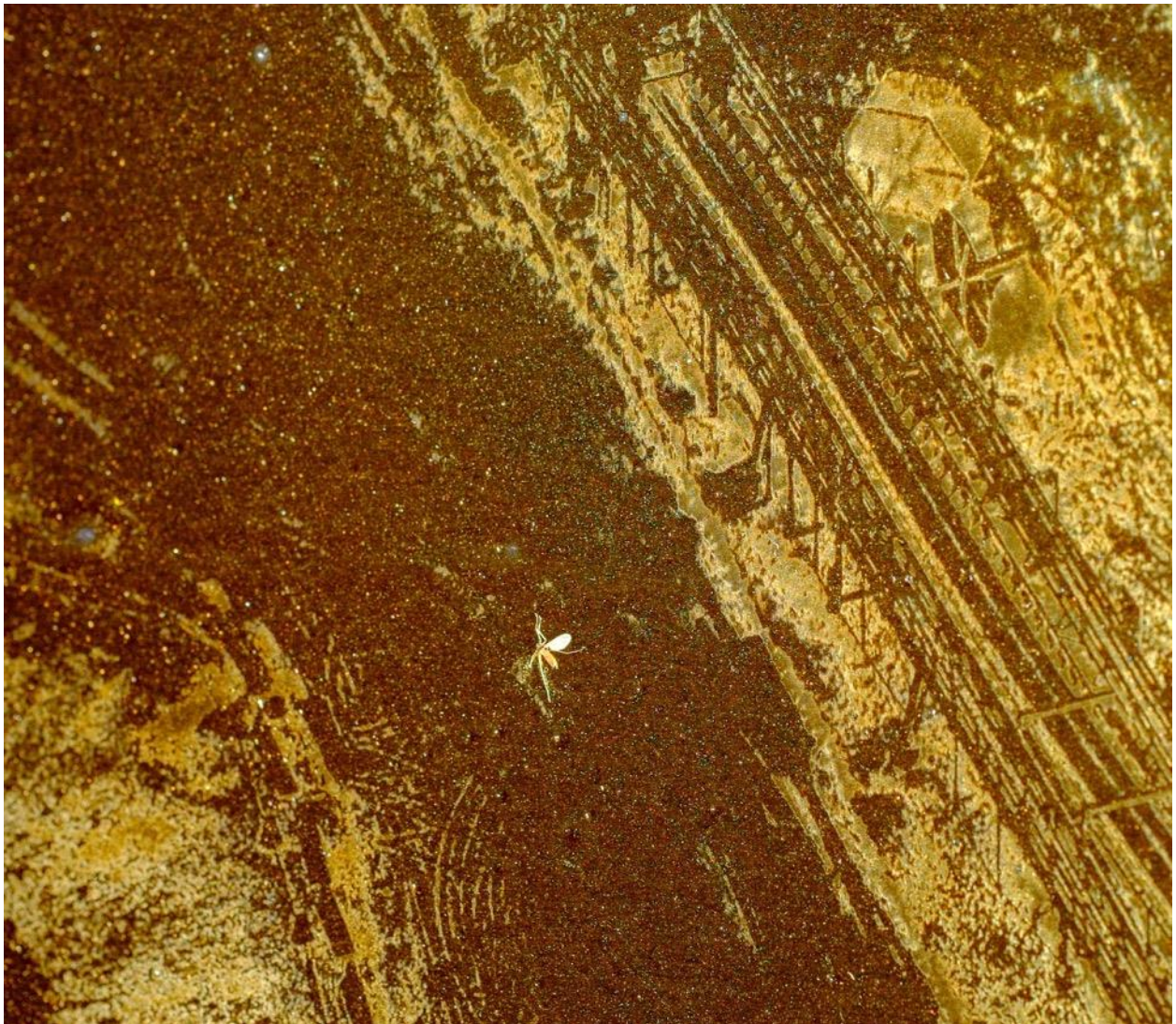
because of the structure of the laws of the market that society has instituted and controls, because of the mechanisms of external debt and other similar inequities, that same "society" *puts to death* or ... *allows* to die of hunger and disease tens of millions of children ... without any moral or legal tribunal ever being considered competent to judge such a sacrifice, the sacrifice of others to avoid being sacrificed oneself. Not only is it true that such a society participates in this incalculable sacrifice, it actually organizes it. (86)

Ian Angus has noted, regarding Derrida's point about infinite responsibility, that "it undermines any sense in which the face of my child might have a greater claim on my responsibility than another" and leads him to question the potential of a "strictly universal appeal" to "adequately address ethical responsibility in our time" (4). He proposes that, "Perhaps a recovery of the ground of one's commitment to specific particularities is required. To my mind, the struggle for justice cannot demand leaping over the particularities of my own commitments to specific others" (4). If we do leap over those particularities, it seems to me too easy to fall into a state of quietism, despair, or denial on the one hand, or to reject the universal appeal entirely and operate within the kind of relativistic pragmatism of something like Ezra Levant's *Ethical Oil* (whose arguments might be summarized as "we will continue to use petroleum for the foreseeable future, so it is better to use



Canada's bitumen, despite its imperfections, than to use oil from dictatorships with weak human rights and environmental protections").

Perhaps the recovery of the ground of commitment to particularities is something that petrographs can help us begin to think. By reminding us (again) of the sacrifices involved in bitumen extraction, by interrupting the smooth functioning of the society that participates in and organizes the sacrifice of otherness on the scale of the bituminous sands (from insects to ducks to people; from particular muskegs and fens to entire watersheds to the climate of the Earth itself), petrographs can encourage us to think the particularities of our own commitments and their connections to others and otherness on a global, and maybe even universal, scale. Not to justify the status quo, but to question it, to see the controversies within it that we normally ignore, the proverbial fly in the ointment.



**Open Earth with Pipeline** (detail). V 1 of 3, 2015.

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