
PETCOKE

TRACING DIRTY ENERGY

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CAPTIVE SUN

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On the day this project began, we all got in a bus and went down to the Calumet region. We stopped by the canal and stood in a group near the tracks, talking and pointing. I could see traces of the stuff on the ground, where it had fallen from the railroad cars. I leaned over and scooped some up. I was holding the subject of this exhibition in my hand: petroleum coke. But what could that possibly mean to me?

In today's society, self-discovery confronts you as a thing. It's hard, black, granular, brittle, and it doesn't even speak. Once you've seen it, nothing happens. The world doesn't turn, no one's heart skips a beat. The thing in itself—petcoke—has no magnetism, no resonance, no qualities. It's a cinder, an artificial stone, which doesn't even look like it would burn. Yet we have come to this thing searching for the origins of the petroleum world. How to loosen the tongue of a stone? What's the message at the heart of the thing?

Climate change has brought questions about the agency of things into the cultural field. Such questions lie at the root of what contemporary philosophers call "speculative realism." But environmental justice issues force the same

questions on communities all across North America. When three massive petcoke piles appeared along the Calumet River it was a major blow for inhabitants of Southeast Chicago and a wake-up for the entire metropolitan region. Those piles revealed a simple fact that very few people, up to that point, had cared to notice. Namely, that the Chicago urban area processes approximately one quarter of the tar sands bitumen exported to the United States from the Athabasca Watershed in Canada. This means that without having asked for it, we participate in what is widely considered to be the most environmentally destructive project on earth.

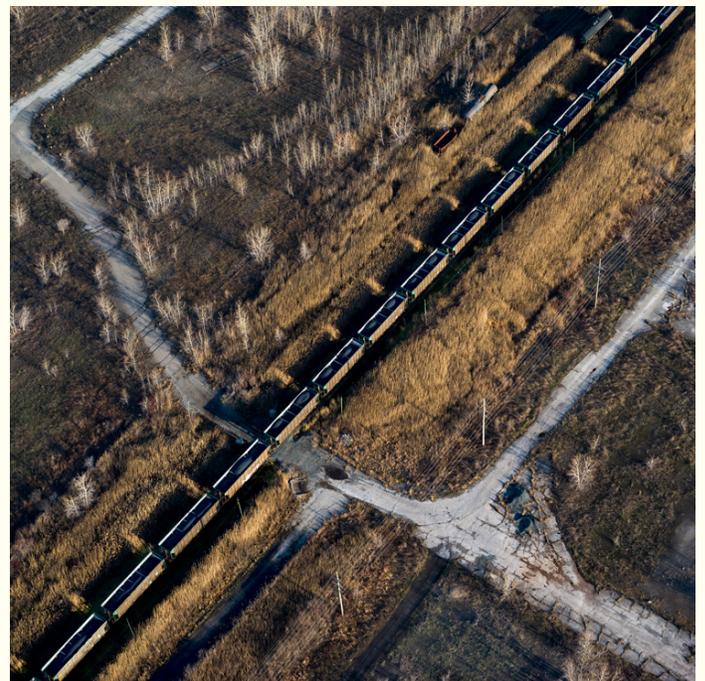
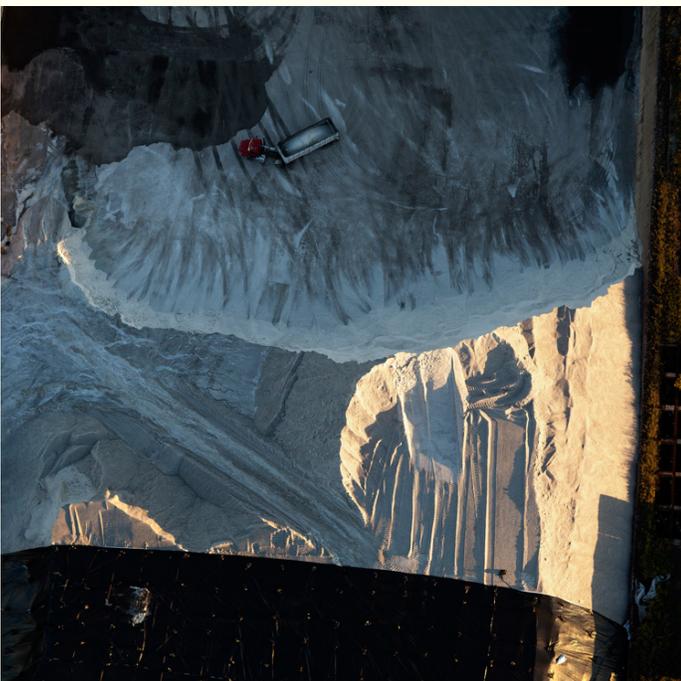
Thanks to the activism of Southeast Chicago residents, this simple but crucial fact began to leave the realm of managed oblivion and enter that of common knowledge. Something similar is happening, but more fitfully and slowly, with the highly explosive Bakken crude that rolls by rail through Chicagoland neighborhoods every day. The relentless pressure of the petroleum industry, and more broadly, of what Latin Americans call *extractivismo*, is now felt throughout the United States. As I write, the daily news is running stories about a "bomb train" that exploded in Mosier, Oregon, just a few hundred yards from a school with

**“The very movements of our desire
are shaped by the agency of dirty energy.”**

kids at play. Extractivism is finally showing its public face. All of us are living in a new kind of industrial environment, full of energy, full of pleasures, full of dangers cloaked beneath a normalizing veil. The very movements of our desire are shaped by the agency of dirty energy.

What I want to do is to explore this speculative terrain, in the way that artists do. That means, not

only researching in the library or on the web, but above all going to the sites, seeing the materials and the machines, trying out the means and forms of expression, and attempting to close the gap between knowledge and experience—or at least, to feel out the space between the two.



Terry Evans, Left to Right: *Chicago Salt Storage on Calumet River*, 2015. *Petcoke Filled Train Moving Through a Brownfield, Former Steel Mill Site*, 2014.

THE HEAT

Let's start at the center of the petroleum world: the refinery. In the Chicago area that means BP Whiting, Citgo Lemont, and ExxonMobil Joliet. You can't go inside, but you can look through the fences and the gates, float by on the lake or the river, or maybe even fly above in a helicopter, as the photographer Terry Evans does. The spectacle of modernism could not get more intense. Vast like an industrial cosmos, the refinery smolders in the sun, sparkling with myriad lights after nightfall. Changes in the wind bring crashing sounds and mechanical roars. Local residents report deafening explosions, the kind that shake the ground and flash in the sky. At BP's main gate, with gas flaring from a tower above your head, a bright red LED panel reads "Matches & Lighters are Prohibited."

Evans's photographs peer deep into the labyrinth of the refinery, registering such manifold detail that the clarity itself becomes overwhelming. But any perspective from the ground reveals the main components: the endless bundles of insulated pipes, the high distillation columns, the smokestacks, the storage tanks, the train tracks curving inside the complex. In the vacuum units, superheated water vapor is used to boil the oil into different fractions: gasoline, jet fuel, diesel, heating oil, etc. Natural gas exhaled by the crude is vented back to electrical generators to produce the steam. Asphalt base and molten sulfur are carried away by railroad cars. Toxic compounds such as benzene, toluene,

vanadium and hydrogen sulfide are released to the environment. After cycling through the fractionation columns, the complex carbon molecules will be cracked with yet more heat and catalytic agents, producing further streams of distillates. But when heavy oil from Mexico, Venezuela or Western Canada is used, a thick sludge remains after catalytic cracking: the residuum or "resid." It's ugly, but the profit margin is right there.

Heavy sour crude is cheap—cheap and dirty. For refineries in the Upper Midwest, it's a discount alternative to light sweet oil from Texas or Oklahoma. But refining the heavy sour takes special equipment to clean out the sulfur, and above all, the uncrackable carbon. That's why BP invested \$4 billion in a modernization project that includes the six giant drums towering above Marktown Park in East Chicago. Those drums constitute a delayed coking unit, or really, three such units aligned in a row. Standard Oil of Indiana, the refinery's original owner, built the world's first delayed coker in 1929. Now BP aims to process three hundred thousand barrels of tar sands oil every day, a third of which ends up as residual sludge for the cokers. Downriver from BP, Citgo and ExxonMobil have made similar investments. And in Minnesota, the Pine Bend refinery owned by billionaire industrialists Charles and David Koch is the single biggest destination for Canadian heavy crude. When you fill your tank in the Midwest, you're in Tar Sands Central.

The delayed coking process starts in a furnace that heats the resid to temperatures above 900 degrees Fahrenheit. Before the remaining fuels can vaporize—this is the “delay”—the ultra-hot sludge is released from the furnace into the drum. After delivering its final yield of high-value vapors, the oil residue crystallizes into a dense honeycomb structure. When one drum is full (it can take up to twenty-four hours), the flow of oil is shifted to

the next one. Using high-pressure water jets, the fresh-born stone is cut from the crucible where it was forged. The wet petcoke falls into a pit, from which it is removed by a crane for crushing and transfer to railcars. At BP, the production of petcoke is relentless: up to six thousand tons *per day*. In Lemont and Joliet, similar operations are carried out at somewhat smaller scales. The question is what to do with all the garbage.



Terry Evans, *BP Refinery, Whiting, Indiana*, 2015.

THE DUST

On August 30, 2013, the wind kicked up in Southeast Chicago. Great black clouds filled the sky, like a storm, like a fire, like a malediction. But what rained down was neither water nor sparks nor ash, but instead, a gritty dust blown from three huge piles that looked a lot like heaps of coal. Each pile was the size of a city block and several stories high. There were other open piles along the edge of the canal, for sure: salt, sand, cement, sulfur, scrap metals, pig iron. Yet since the heyday of the steel industry, when molten slag was routinely dumped in nearby wetlands, there had been nothing like these ominous mountains that seemed to grow and grow and grow.

Petcoke is a hot-burning fuel that releases more CO₂ per unit of energy than coal itself (which is typically accounted as the single greatest factor of climate change). Environmentalists call it “the coal hidden in the tar sands.” It can be used where high temperatures are required (for instance, in cement kilns) and it can be blended with coal in power plants, especially because it’s cheap. Some of it is sold in the United States for exactly those purposes. A smaller quantity, with the lowest sulfur and heavy-metal content, is purified at extremely high temperatures to make electrical anodes used in the production of aluminum and steel. That’s done locally in Lemont, at a place called Oxbow Midwest Calcining (which just happens to be owned by the “other Koch brother,” William). The rest of it goes out to the rising industrial powers of the Global South: Mexico, Brazil, Turkey, China, India. The business model in Chicago involved stockpiling the relentless flow from the refineries, while looking for a buyer anywhere on earth. The wind revealed the

consequences of that business.

Corporations do what they want when they’re unregulated. The local operator, Beemsterboer Slag, didn’t even bother to get a permit. Koch Industries—i.e., Charles and David—bought out the former DTE Chicago Fuels and set up KCBX Terminals alongside the canal for a quick and dirty profit. The only requirement for the middlemen was to hold the stuff long enough to unload it. Storm-water runoff and fugitive dust were the worst environmental and public health impacts—or the worst of the known ones, anyway. As the piles grew, the entire city got to see what the petroleum world looks like. Does this industry give a damn about anything?

It’s beautiful to see people fight back against oppression, and that’s exactly what Southeast Chicagoans did. Neighborhood activism reached up to municipal, state, and national levels, rapidly putting an end to Beemsterboer’s operations and forcing KCBX to close one of their terminals in early 2015 and to cease any stockpiling at the remaining site a year later. As I write, the last terminal is completely empty of petcoke, though not of equipment. The people who won these changes are reticent to fully believe it—but this is a victory. Not the first one for this embattled and resistant community.

The generous spirit of the Southeast seems to have touched all the artists in this show. Terry Evans became involved early on, experiencing the heartfelt strengths of local activism and bringing her own skills down to ground level, where she did portraits and audio interviews of the community activists. Her



Claire Pentecost
A Library Of Tears
 2016



Terry Evans *Ban Petcoke March, 100th St, Southeast Chicago, November 3, 2015.*



Rozalinda Borcilă *Experience the Culture: Day-tripping the Petrocapital, 2016.*

engagement, mediated by the Natural Resources Defense Council and the Museum of Contemporary Photography at Columbia College, has been the driving force in the organization of this show. Rozalinda Borcilă and I came in from another angle, via our explorations of the historical transportation corridor that grew up along the canal system. To organize the public walks that were an integral part of our work—and also of this exhibition—Borcilă reached out to many different people affected by Chicago's transport geography. Soon we were collaborating with Tom Shepherd of the Southeast Environmental Taskforce on the oil trains issue.

Claire Pentecost accompanied us on learning walks in the Calumet region, where she felt the emotions of the people and places captured in raw materials from near and distant landscapes: petroleum coke, sulfur, crude oil, tar, canal water, algae, feathers, fur, shredded US currency, Athabasca river mud, oily sand . . . Her *Library of Tears* questions the ancient idea of *amor fati*, or “love of one’s fate.” Can we embrace this Stoic ideal in the age of anthropogenic climate change? Or should we intervene in the consequences of our energy appetites to shape a fate we can genuinely love?

Marissa Lee Benedict and David Rueter probe a yet subtler materialism: particulate matter of 2.5 micrometers or less, which circulates through our bodies and throughout the atmosphere, causing asthma and other respiratory conditions, but also entering the bloodstream. Can you see it, or is it already part of you? Their encounter with the fugitive dust of Southeast Chicago has become a fantastic science-fiction video titled *I Can Only See Shadows*, with striking scenes filmed in northern China and uncanny resemblances to many things happening around us.

This kind of realism is speculative because no one knows what the present is really made of, much less what the future holds. Maybe least predictable of all are the real intentions of the corporations, whose business is to speculate on future profits, whatever the human and ecological costs. At any rate, when I went out on the canal in a boat in the first week of June 2016, the sight of the KCBX terminal without any looming black pile brought a rare and undoubtedly temporary sensation of profound relief.



Marissa Lee Benedict and David Rueter, Video still from *I Can Only See Shadows*, 2016.

THE PIPE

As sure as dust settles, you can be sure the petcoke is still flowing out of the Chicago area refineries. What's much less certain is exactly where it goes. To a coal-handling facility in Paducah, Kentucky? To an Atlantic port in Newport News, Virginia? Those destinations, widely cited in the press, are just casual observations, or maybe even rumor, relayed by an anonymous energy trader. The destinations matter, because other people and other environments will be the victims. The corporations themselves say nothing. This basic lack of knowledge is part of the intractable nature of the petroleum world.

The historical geography of transportation corridors reveals Chicago's central place in continental oil exchanges. Not only railroad tracks, but also pipelines converge at the southern end of Lake Michigan. One axis of the pipeline system links Chicagoland terminals and refineries to the storage hubs of Patoka, Illinois, and Cushing, Oklahoma,

and then on to the great arc of refineries and chemical complexes stretching from Louisiana to Houston. Increasingly, northward-flowing pipelines are being reversed to bring the tar sands crude south to this enormous market. So far, indigenous and environmentalist activism has kept the heavy Canadian oil from reaching any seaport for export abroad. But the capacity of the southern pipeline system is slowly increasing.

The works of Victoria Sambunaris carry us all the way to the Gulf of Mexico: a battered ocean dominated by deep-sea rigs and transnational freight. The supertankers and container ships she has photographed off the coast of Galveston, Texas, are maritime extensions of the petroleum transport system. Many of her images include low strips of coastline that dissolve into the open sea: a dry-land perspective on the floating world of global industry. In the exhibition, a marine traffic scanner follows a



Victoria Sambunaris From *Industrial Shipping Vessels, Houston Ship Channel, Texas* 2015 -2016, Courtesy of Yancey Richardson Gallery, New York.

number of these ships as they ply their trade.

The shape of the world market continually changes. Today the strategic flows run northwest to northeast: from the Alberta tar sands and the Bakken region all the way to the refineries and ports of the Eastern Seaboard. The Enbridge corporation is the lead player here. Its mainline originates at the terminals of Edmonton and Hardisty in Alberta, where the tar sands crude is gathered. In Superior, Wisconsin, the lines fork into the two branches of the Enbridge Lakehead system. Line 5, constructed way back in the 1950s, runs light sour and synthetic crude along the northern coast of Lake Superior, then beneath the ecologically fragile Straits of Mackinac and down to refineries in Port Huron, Michigan, and Sarnia, Ontario. Among those who care, the biggest fear is that someday the half-century old pipeline will break

in the middle of the straits. Lines 13 and 14 head south through Wisconsin, carrying heavy Canadian oil to terminals just below Chicago. Enbridge is now seeking to double the capacity of those Wisconsin lines through aggressive legal maneuvers, in order to functionally replace the controversial Keystone XL project that was defeated by US environmental activists. From Chicago, the flow heads east toward refineries in Toledo, Buffalo, and Montreal, and perhaps someday to the biggest prize of all: an oil-exporting port on the coast of Maine, the missing key to tar sands profitability. Beginning at the terminal in Griffith, Indiana, the crucial segment of the Enbridge system is Line 78, formerly known as 6B. It's infamous because in July 2010 it ruptured, dumping a million gallons of heavy tar sands crude into the Kalamazoo River. The worst pipeline spill in US history.

THE FLAME

Could anyone see, hear, and touch the material geography of this far-flung network? That was the wild ambition of Steve Rowell. He began in Alberta, on the oil leases north of Fort McMurray, where the boreal forest is scraped away to reveal the bituminous sand. Launching his camera-equipped drone into the sky, he filmed segments of the tar sands pipelines running down through Edmonton, then across the US border, into North Dakota's wheat fields where pipelines snake around abandoned underground ICBM silos, over the headwaters of the Mississippi in Minnesota and south to Wisconsin, reaching the Chicagoland terminals and finally Patoka, Illinois. Seeking origins and endpoints, he made additional excursions to the Koch family compound and global corporate headquarters in Wichita, Kansas, and to the river port of Paducah, Kentucky. A four-channel soundtrack brings you into the distant spaces. The intensive explorations of the artists working locally in Chicago are echoed, at continental scale, by this aerial take on the rhythms of the petroleum world.

As I was researching the tar sands segment of the *Petropolis* map that I have contributed to this project, Rowell and I exchanged emails about the desolate winter landscapes around the Fort McMurray refineries. There, uncountable tons of discarded petcoke block the horizon, and pyramids of cast-off sulfur reach slowly up into the sky. With a kind of fascinated horror, I learned that in order to mine the deeper sectors of the bitumen deposits, superheated steam is pumped underground, slowly melting the

tar over a period of months until it can flow through a pipe. Tremendous quantities of natural gas are burned for this purpose, dramatically increasing the CO₂ production of the mining operations and therefore reducing the net energy yield. Another melting technique, known as a "fireflood" and touted by some as a "green technology," pumps oxygen-enriched air beneath the earth to set off an invisible underground burn. A Husky Oil experiment with the technique was abruptly canceled when, against all predictions, the inert nitrogen left over by underground combustion began leaking into distant production wells.

Soon, Rowell and I were writing each other about a very different kind of blaze: the raging wildfire known as "the Beast" that had erupted under conditions of unusually intense summer heat in the tinder-dry forests just south of Fort McMurray. Over two thousand buildings were destroyed along with multiple work camps, while personnel were evacuated and much of tar sands production was shut down for three weeks. From a Chicago perspective, the dust of the petcoke piles seemed to morph into the vast pyrocumulus clouds rising above the oil sands capital. In Fort McMurray, fire and ash literally did rain from the sky. Few are willing to say that the intensity of this blaze is due to climate change. As I write, over a month later, the fire has covered more than five hundred thousand hectares and it is still not fully contained. But the oil industry is ready to pick up the pieces and start pumping again.



Steve Rowell Video stills from *Midstream at Twilight*, 2016.

OUR ATMOSPHERE

The petroleum world is a social structure and a built environment, exerting powerful effects on everything that used to be called nature. In particular, it reaches chemically into the air, altering its gaseous composition along with the mood of the times. By focusing on a cinder of the refining process, this exhibition seeks to explore the contemporary social structure, the built environment, and crucially, the forms of desire that inhabit our own bodies and spirits in the world. Is humanity the fire that burns in the guise of oil? Or have we somehow become locked up in its carboniferous agency? Perhaps it is not too much to say that a captive sun resides at the heart of the artificial stone.

In their work for the show, Beate Geissler and Oliver Sann explore the cultural construction of methadone as a kind of sanctioned chemical avatar that at once disguises and reiterates the persistent desire for heroin, whose devastating effects it neither curtails nor even mitigates. Something similar is happening, they suggest, when we speak of carbon offsets, green technology, clean coal, etc. Simultaneously they stage an apparition: a pile of dusty petcoke sealed inside a transparent plastic box to protect artworks and downtown lungs from what gets dumped on the Southeast. In a social environment marked by the inflation of green rhetoric, Geissler/Sann warn against taking appearances for realities. There is quite a difference between the air-conditioned space of the museum and the world outside, they seem to be saying. And somebody with power is undoubtedly speculating on all the rosiest futures.



Geissler/Sann *Prevailing Winds and Relative Distances*, 2016
 Courtesy of taubert contemporary, Berlin.

Community activists who have seen every imaginable brand of political rhetoric come and go, usually with no discernible relation to the surrounding environment, may well feel the same sense of cautious reserve. Ground truths remain the only trustworthy ones. Yet the nature of the complex collaboration that produced this exhibition does show that something is changing in the forms of

perception and expression. While the artists were working, a thousand people—including some of those involved with this project—joined a protest against BP Whiting, as part of a global cycle of actions against fossil fuels. These are signs of the times. Why not make them into something more? It's up to all of us to be responsible to the atmosphere that our actions create. Inside the fossilized shells of the petroleum world, a different kind of desire is emerging. New potentials are waiting for release.

Thanks to Claire Pentecost for the title of this text, to the artists and activists for its content, and to the anthropologist and performance artist duskin drum for many insightful conversations about the culture of oil.

— Brian Holmes



Brian Holmes from Map/Archive *Petropolis*, 2016.

Brian Holmes is an art critic and cultural theorist based in Chicago. Over the last fifteen years, he has worked with politically engaged artists Ne Pas Plier, Bureau d'Études, Makrolab, Hackitectura, and the 16 Beaver Group, with whom he and Claire Pentecost organized the Continental Drift seminars in New York from 2005 to 2009. Holmes's research interests span art, networks, political economy, and grassroots resistance. He lectures widely and has contributed to numerous catalogues, journals and magazines, including *Multitudes*, *Springerin*, and *Open*. Holmes is the author of three books: *Hieroglyphs of the Future: Art & Politics in a Networked Era*, *Unleashing the Collective Phantoms: Essays in Reverse Imagineering*, and *Escape the Overcode: Activist Art in the Control Society*. He was awarded the Vilém Flusser Prize for Theory at Transmediale in Berlin in 2009 and holds a PhD in romance languages and literature from the University of California at Berkeley.