

Experimenting with Oil

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experiments
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energy transition

Experiment #1: Oil Modernity

There have been all manner of experiments conducted on and in relation to oil. Yet the level of ongoing technological innovation and invention required to drag the stuff out of the ground is still not readily apparent. In the broad cultural imaginary, oil comes gushing from the earth when old-hat local know-how is combined with the brute muscular energy of roughnecks—the stuff of nineteenth-century black-and-white photos or Hollywood films like *The Treasure of the Sierra Madre* (1948), *Giant* (1956), or *There Will Be Blood* (2007).¹ This vision of oil's origin—as marked by bodily toil and cries of “Eureka!”—has been as effective in moving it out of sight and out of mind as has the complex technological network that transmutes liquid into something without substance: energy. After all, what could the muck and grease accumulating in the soil below oil derricks possibly have to do with the energy that appears from neat white sockets located conveniently in walls and gives life to the shiny computers plugged into them? If there have been oil experiments, we believe they are—they must be—a thing of the past. Technology has moved on, and so, too, has the energy which brings it to life.

The reality of things is of course quite different. Oil remains essential to the daily operations of contemporary life, despite the planetwide growth in renewable energy, and continues to be a way for wealthy companies and countries to retain and further expand their wealth. The ever-growing difficulty of accessing fossil fuels has necessitated endless mechanical and scientific experimentation to keep it flowing at current levels of demand—over 102 million barrels per day.² After a century and a half of petromodernity, producers have been forced to hunt for oil in more and more remote locales. Giant sea-bound oil derricks housing hundreds of workers can be found off the coastlines of almost every continent. In the Arctic tundra, oil flows out of drill sites made possible by advanced equipment designed to withstand the extreme cold. Fracking, a process of injecting a sophisticated chemical stew into the ground at high pressures, has been invented to free natural gas from shale rock. Perhaps the most significant of all these experiments is the extraordinary system of pipelines encircling the planet, moving petroleum and gas across rivers, plains, and mountains to markets, where another transmutation takes place—not liquid into energy, but black into gold.



Alberta oil sands, Highway 63, 2015

These contemporary experiments, deliberately hidden from view and increasingly difficult to visualize, have become a key element of the enormous technocratic apparatus that sustains modern existence—a global, material system most of us neither fully understand nor want to know about. As ever, the rule of the modern citizen-subject in the Global North holds true: out of sight, out of mind, especially when it comes to the traumas being daily inflicted on the planet.³

The necessity of experimenting with oil is especially evident in the vast landscape of the Alberta oil sands. The challenge of freeing usable oil from the sand to which it is bound has led to radical and extreme technological experiments. The systems of trucks and conveyors used in the oil sands are of an unimaginable scale; the pipes and towers of the processing facilities are not far behind. It has been argued that, taken as a whole, the oil sands constitute the largest capital project on the planet at present—indeed, perhaps of all time, having already consumed US \$200 billion on an extraction site the size of Florida. The sheer cost of surface mining—the process still being used in the oil sands—has necessitated that companies experiment with new ways to get at the precious black stuff, such as steam assisted gravity drainage (SAGD), or the invention of new, increasingly toxic chemical solvents to separate sand from oil. The physical space of the oil sands is viscous and dirty, a canyon of extraction as deep as any ever cut into the earth by human beings. The oil produced in Alberta is made, enabled, and kept alive by satellites and computers, with AI-assisted oil extraction likely just around the corner.

These are only the most recent experiments on the oil sands. In the 1950s, geologist Manley Naitland invented a way of getting oil from the sands that, he hoped, would have allowed companies to sidestep the need for big machinery



Alberta oil sands, Suncore mining site and the Syncrude plant, 2015

and chemical magic. Naitland imagined a post-WWII technical use for nuclear weapons: oil recovery. Buried underground and used carefully, the intense heat and shockwaves generated by a small nuclear device would boil oil out of sands; the giant cavity created underground by the blast would in turn act as a perfect container within which to collect the oil left behind (and later would be an ideal space for CO₂ to be injected into the ground). Naitland's calculations suggested that each blast would create an underground cave holding two million barrels of oil. Such experimentation with oil might seem like pure fantasy. And yet, in July 1959, the governments of Canada and Alberta were ready to approve Project Oil Sands to meet energy demands for an expansive post-war economy. Only the large reserves of recoverable oil that still existed at the time quashed these extreme plans; one suspects that only the environmental consciousness that has developed in the intervening sixty years has pushed extreme experiments such as this one to the back pages of history books.⁴

The extremity of these technological experiments with oil underlies what has constituted the real experiment of oil: modernity itself. It is no exaggeration to suggest that the twentieth and twenty-first centuries would not have been the same without oil—a source of energy with a huge energy output per unit of fuel which is easy to store and transport, and which forms the basis of all manner of other substances without which it is hard to imagine life on the planet today (plastics being only the most well-known of these). Histories of the century alert to the significance of energy inevitably provide a vision of the recent past in which the presence of oil is amongst the central forces shaping human life—if not the single *ur-force* to which all other narratives can be connected. John Robert McNeill's environmental history of the twentieth century, *Something New Under the Sun*, quickly identifies the capacities, technologies, and infrastructures enabled by oil to be the single most significant factor in the massive expansion of population over the century, which in turn has generated larger increases in water consumption, CO₂ production, and so on.⁵

The experience of the modern would have been utterly different in the absence of this single commodity; the presence of oil allowed for the creation of modern cities, automobile traffic, global trade, and migration on an unprecedented scale, the agricultural revolution—which is to say: modern life itself. Researchers in the energy humanities have alerted us to just how deep and constitutive the impact of fossil fuels has been, pointing to the manner in which the availability of energy has defined modern notions of labor, gender, family, autonomy, and selfhood, right down to the ontological depths of being.⁶ That the modern has been an experiment with oil is only beginning to dawn on us, as we consider what might happen in the absence of our primary energy source—a question for which we have not even developed partial answers, but have chosen to address instead with science fiction imaginings of miraculous new sources of energy (e.g., unobtainium in *Avatar*, spice in *Dune*, fusion energy in real-world physics labs) that will hopefully appear to fuel clean, green, shiny space-age cities.

We know the world is becoming uninhabitable due in part to the use of fossil fuels. Yet we still haven't come to accept that we're oil creatures through and through, to draw a link between the multiple social and cultural commitments we've made to fossil fuels, and the depths of those commitments. The ongoing experiments in fossil fuel extraction have continued to animate the experiment of oil modernity, whatever the consequences. Where does this leave us?

Experiment #2: Abstract to Real

A truly radical experiment in relation to oil would be to envision a new kind of modernity. This would be a modernity imagined sans oil—which is not the same as saying this it would be without energy at all. What would be missing in this



new modernity would (to begin with) likely be some of the specific capacities of oil and the conveniences it affords. Oil can be easily moved and stored and can be used in any weather at any time of year; it is a form of energy that has become co-terminus with daily life itself. If fossil fuels have indeed shaped labor, gender, the family, autonomy, and much more, in a renewable modernity, current ways of living and being will need to be nudged in different directions. We have some hints of what such a modernity might look like. Sociologist Elizabeth Shove has argued that the fluidity and unpredictability of wind and solar energy—sometimes available, sometimes not—means we need to reimagine the social relationship between time and energy, because we need to attune ourselves to the ebb and flow of energy over the course of the day, month, and year.⁷ But shifting us from one experiment—modernity as oil—to another social and historical experiment—modernity without it—has proved far more difficult than one might have imagined. We love being creatures of oil and, despite ourselves and our concern for the environment, fear becoming something else.

Artists possess a unique ability to reimagine the mundane and overlooked aspects of our lives, transforming them into sources of insight and inspiration, and providing us with the energies needed to reimagine ourselves. The critical work of artists committed to change is to intervene—aesthetically, conceptually, and politically, or more likely all three at once—to re-narrate imaginaries so that we can abandon the destructive comforts of one experiment for the uncertainties and political possibilities of another. The *Reflecting Oil: Arts-Based Research on Oil Transitionings* project, spearheaded by Ernst Logar, exemplifies this critical, transformative potential. Through a series of innovative projects and interventions, Logar and his team have sought to make the pervasive yet invisible presence of crude oil tangible to the public, employing photography, sculpture, and installation to illuminate the substance's profound significance and ubiquitous influence on modern civilization. *Reflecting Oil* is an experiment designed to challenge the conditions of oil modernity, while simultaneously initiating the energy experiments that we need to do next.

In oil modernity, the fundamental experience of fossil fuels is no experience of it at all. It would be an overstatement to say that no one in the era of oil has ever seen, felt, or smelled the substance. Those living near extraction sites, or who have had to manage the traumatic impact of oil spills on human and non-human communities, know oil intimately, even if they would rather it had remained a mystery. Even so, for most of those on the planet, oil modernity is defined by absence, invisibility, and withdrawal. We don't normally note the presence of oil in our lives, except perhaps in an abstract, intellectual way—as the subject of dinner table discussions about the ubiquity of plastics or the challenges of energy transition. Instead, we treat the presence of fossil fuels in our lives and homes as commonplace, boring, and banal.

Oil modernity is a shell game of epistemology and ontology, of deferred knowledge and experience, of the practice of unseeing a substance to be found everywhere. A glance around the room in which I am writing this essay, for instance, reveals it to be drenched in fossil fuels—in the plastics of my computer keyboard, the mouse on my desk, the stuff filling my desk drawers (pens, rulers, staplers), and the wheels on the desk chair. Fossil fuels lurk about in other, more magical ways, too, which can be much harder to detect. Every one of the objects I've just named made their way in my life by transiting oceans in vessels powered by fossil fuels and crafted in factories more likely than not fueled by coal, gas, or oil. It requires real effort for me to keep fossil fuels "visible" in this way; even as someone who has been thinking about oil for two decades, the only real way of spending my time and living my life—the more intuitive and ready-to-hand way—is in ignorance of the networks of relationships and physical matter that shape my reality. To be truly modern—to



Ernst Logar, *Solarity*, 2024
LED display, electronic parts, solar cells,
rechargeable battery

embrace progress, growth, and wealth—means that we (have to) accept we cannot know about oil, because in a very real way the expectation is that we should live as if it doesn't really exist. When oil shows up on beaches and in rivers, spilled out of pipelines or drill sights, it isn't a sign of the normal state of things, i.e., its ubiquity as the blood that keeps the social body alive. It is treated instead as a small error from which we should not draw bigger conclusions. If anything, these exceptions compel us to plod forward as usual, happy in the not-knowing reinforced (in a way one might not have imagined) by these small glimpses into the physical existence of oil.

We depend deeply on the energy generated by fossil fuels. And yet we don't know much (if anything) about its actual substance. It is precisely because oil in modernity is framed as substanceless and made hidden that it can be so powerful to render it into *substance*. Giving oil a physical reality, insisting on its material qualities, on its feel, texture, liquidity, smell, and even taste, constitutes a fundamental challenge to oil modernity. Indeed, there is perhaps no more effective challenge, at once epistemological (the hidden becomes visible), ontological (it transmutes oil back into substance), and political (revealing the lies on which oil modernity has staked itself). I wrote above that the fundamental experience of fossil fuels is no experience of it at all. This is precisely why we need experiments to translate fossil fuels into experience. What connects the varied experiments of *Reflecting Oil* is an acknowledgment of the specific characteristics of oil, the modes of perception required to experience it, and an investigation of its roles in everyday practices, which are deeply embedded in historical and cultural contexts. Logar and his partners insist on perceiving the reality of substance behind and beneath the metaphorical and cultural meaning that accompanies anything physical. The experiments in apprehending and encountering the multisensory forms of substance create a more nuanced understanding of the material beyond its mere chemical properties. The new methodology of substance guiding the investigations in *Reflecting Oil* make it impossible for us to take oil modernity at its word, showing us the limits and problems of the game of material absence on which it so deeply depends.

The collaboration between artists, scientists, and engineers in this project underscores the importance of interdisciplinary approaches in addressing complex global issues, illustrating how art can play a vital role in fostering a deeper understanding of the challenges and opportunities of transitioning away from fossil fuels. Logar's project provides an excellent starting point for the collective experiments we need to undertake to move past the experiment of oil modernity and its consequences for all inhabitants of the planet.

Experiment #3: Revolution?

Reflecting Oil exemplifies the political force of the energy humanities. When it comes down to it, what I have been arguing over the past decade is not that we should use fewer fossil fuels because of their impact on the planet—a familiar argument made by groups and individuals intent on limiting the production of greenhouse gases and damage to the environment. Rather, it's that the liberal-capitalist subject is a subject that has been developed around the use of ever-increasing amounts of energy—and of a specific kind of energy, with specific attributes and capacities. As such, if we are to successfully make a transition to new forms of energy, we will need to create a new kind of subject or hope that such a subject will come into being as a consequence of the implementation of new forms of energy. Without such changes to subjectivity, it is unlikely that a transition to renewable energies will work as hoped, at least not with the intensity demanded by the problem of climate change. We need to create a renewable, sustainable, solar/wind subject, one animated by different goals, expectations, and hopes. We need to re-set our bodies, selves, desires, hopes, and dreams. If it seems like an impossible task, it is. The circumstances we find ourselves in demand nothing less than we take up the challenge of flipping the impossible to the possible and do so with the speed of a revolution.

Who will lead such a revolution? What are the presumptions and imaginaries that guide it? And what steps need to be taken from now into the future to make this revolution come about? These are the questions I've been asking myself in my writing. Through his experiments with new forms of art and critical practice, it's clear that these are the kinds of questions Ernst Logar has been asking himself, too. And if we pay close enough attention, we might find that he is also giving us some of the answers we so desperately need.

- 1 *The Treasure of the Sierra Madre*, directed by John Huston (1948); *Giant*, directed by George Stevens (1956); *There Will Be Blood*, directed by Paul Thomas Anderson (2007).
- 2 Oliver Millman, "Surge of new US-led oil and gas activity threatens to wreck Paris climate goals," *The Guardian*, March 28, 2024, <https://www.theguardian.com/environment/2024/mar/28/oil-and-gas-fossil-fuels-report>. In its recent annual reports, the International Energy Agency has indicated that oil demand will finally peak by the end of this decade. Even a decline in use from a peak would mean an enormous amount of oil would still be in use globally. See Alex Lawson, "Peak in Global Oil Demand 'In Sight Before the End of Decade,'" *The Guardian*, June 14, 2023, <https://www.theguardian.com/business/2023/jun/14/peak-in-global-oil-demand-in-sight-before-end-of-decade>.
- 3 The genre of environmental exposé, which draws attention to modernity's blinders, is large and growing. For a few recent examples, see Oliver Franklin-Wallis, *Wasteland: The Secret World of Waste and the Urgent Search for a Cleaner World* (New York: Hachette, 2023); Siddharth Kara, *Cobalt Red: How the Blood of the Congo Powers Our Lives* (New York: St. Martin's Press, 2023); and Henry Sanderson, *Volt Rush: The Winners and Losers in the Race to Go Green* (London: Oneworld, 2022).
- 4 My account of Manley Naitland's project as well as the Soviet's PNE program is drawn from William Marsden's *Stupid to the Last Drop* (Toronto: Vintage Canada, 2008), 1–34.
- 5 John Robert McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (New York: W. W. Norton & Co., 2000).
- 6 For some examples, see Alyssa Battistoni, "Bringing in the Work of Nature: From Natural Capital to Hybrid Labor," *Political Theory* 45, no. 1 (2017); Amanda Boetzkes and Andrew Pendakis, "Visions of Eternity: Plastic and the Ontology of Oil," *e-flux* 47 (2013); Warren Cariou, "Aboriginal," in *Fueling Culture: 101 Words for Energy and Environment*, ed. Imre Szeman, Jennifer Wenzel, and Patricia Yaeger (New York: Fordham University Press, 2017), 17–20; Stephanie LeMenager, *Living Oil: Petroleum Culture in the American Century* (Oxford: Oxford University Press, 2014); Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (London and New York: Verso, 2016); and Leon Sealey-Huggins, "'The climate crisis is a racist crisis': structural racism, inequality and climate change," in *The Fire Now: Anti-Racist Scholarship in Times of Explicit Racial Violence*, ed. Remi Joseph-Salisbury et al. (New York: Zed Books, 2018). There are hundreds of books and articles in the field of energy humanities I could have listed which undertake the work of linking fossil fuels, culture, society, politics, and philosophy.
- 7 Elizabeth Shove, "Time to Rethink Energy Research," in *Nature Energy* 6 (2021), 118–120.

