

# Antipode

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## As Something Animal

“If a lion could talk, we could not understand him” Wittgenstein (1958: p.223) remarks towards the end of the *Philosophical Investigations*. Lions have a “form of life” different from that of human beings, a form of life inaccessible to human beings, which makes their hypothetical language similarly inaccessible. What then is “form of life”? Wittgenstein himself does not elaborate, but students of Wittgenstein seem to agree that forms of life are constituted of patterns that give meaning to our experience of the world. Our form of life is the “groundless ground” upon which our activities rest and where the justification of what we do ends and must therefore be accepted as given (Wittgenstein 1958: §217 - see also p.226). Forms of life cannot be explained; neither can they explain anything: they are formal conditions lacking empirical content not causal laws and, unlike empirical regularities, they are not discoverable by experiment since any such attempt presupposes the form of life that would render the process of discovery intelligible. For the same reason, we cannot imagine other forms of life because any such contemplation would be made from within our form of life.

Does that mean we are bound by our form of life as we are by natural laws? The vagueness of the notion opens it to such interpretation, but there are varying, and often conflicting, interpretations ranging from biological determinism to cultural relativism, some emphasizing the formal aspect of forms of life (patterns, regularities, *etc.*), others its lived dimension: *life, activity*, either in the biological sense (natural history of the species) or the cultural sense (diversity, institutions). Although the anthropological sense is prevalent in the current use of the term—interchanged often with expressions such as way of life, mode of life and lifestyle—the naturalistic interpretation which construes the human form of life as something

typical of the species, of our biological constitution and natural propensities, persists. It permeates even interpretations that are not self-consciously biological or deterministic, and finds support in remarks by Wittgenstein about “the natural history of human beings” (1958: §25; §415). A form of life is, “as it were”, “something animal” (Wittgenstein 1969: §358-359).

What does it mean, then, to speak of “forms of collective life” and “forms of democratic politics” created or made possible by abundant fossil fuels? How can forms of political life be created from the production and consumption of large amounts of hydrocarbons? Can such formulation provide the basis for a materialist theory of politics, or democracy more specifically, that gives the material processes and objects with which our everyday life is entwined a constitutive part in our social and political practices? What happens to the materialist conception of politics—and to political *practice*—when the physiochemical properties of matter become constitutive of political agency?

This is what Tim Mitchell pursues in *Carbon Democracy*: a “socio-technical understanding” of democracy as a form of political life grounded in forms of carbon energy and, on this basis, to outline ways to overcome “obstacles to our shaping of collective futures” deriving from carbon democracy. Democratic politics and fossil fuels, Mitchell argues, are not simply related: democracy is “a form of politics whose mechanisms on multiple levels involve the processes of producing and using carbon energy” (p. 5). Mitchell recounts how the transition to an energy regime dependent on fossil fuels with the coal-fired industrialization of Europe laid the path towards “ways of living based on very high levels of energy consumption” in the industrialized countries. The transition, however, was never confined to the industrialized west: “the switch in one part of the world to modes of life that consumed energy at a geometric rate of growth required changes in ways of living in many other places” (p. 16), ranging from the dispossession of agricultural workers in places like India and Egypt and their subjugation to slavery and slave-like colonial systems, to the institution of forms of government intended to facilitate the control of oil reserves and flows of financial capital across the world. Carbon democracy is a planetary form of life whose development presupposes and depends on the production of different forms of political and economic life over time and space. At a deeper level, however, carbon democracy could also be read as a segment of the natural history of the

human species. Like any form of life, democracy is “carbon-based” (p. 5). *Carbon Democracy* is about “democracy as oil”.

Yet, “forms of energy” do not determine “modes of politics”, Mitchell warns towards the end of a meticulous argument to the contrary: “energy is a field of technical uncertainty rather than determinism” (p. 238). Mitchell construes this uncertainty, and the controversies that it produces, as the basis for political possibilities that begin by acknowledging that politics is neither determined by nature, as the Malthusians maintain, nor is politics free from natural constraints by the limitless potential of scientific progress, as the technologists maintain. Political possibilities begin by acknowledging that we find ourselves in the midst of socio-technical controversies, “disputes about the kind of technologies we want to live with, [that are] also disputes about the forms of social life, of socio-technical life, we would like to live” (p. 239). Participation of ordinary citizens in the construction of knowledge and in debates about nature, expertise and technology, is “the place where opportunities for democratisation occur” (p. 241). For Mitchell, the antidote to the political and environmental ills of carbon democracy is the democratization of the debate about carbon, carbon democracy in another form. *Carbon Democracy*, the “socio-technical understanding of carbon democracy”, cannot imagine forms of political life beyond the limits of the form of political life it produces.

The argument of *Carbon Democracy* is laid out in eight eloquent chapters, extensively researched and rich in empirical detail, and chockfull of stories that stand on their own as a fine specimen of historical sleuthing. A substantial part of the material is familiar to students of the political economy of oil and students of the Middle East, and to those who have read Mitchell’s work over the past 15 years. Still, Mitchell is quite skillful at revisiting events and histories that have been rehashed ad nauseam, rearranging them in novel ways that infuses them with freshness and originality. This is somewhat undermined by a prose brimming with machineries, mechanisms, apparatuses, assemblies and networks, occasionally followed by litanies of entities of diverse natures, which seems meant to avoid causal determination running from physical to political processes, although instead ends up substituting series for theoretical analysis of social and political context and underlining the relations between physical objects as the ultimate determining element in those series.

### *The Struggle Against Democracy*

Despite its title, *Carbon Democracy* is largely a history of the struggle against democracy and the erosion of democratic rights won by the labor movement since the 1870s. The central event in this story is the conversion from coal to oil as the primary industrial fuel in the industrialized countries, *i.e.* in countries already industrialized by coal. This conversion marks a decisive break in the natural history of democracy: both coal and oil made democracy possible but in different ways, producing opposite effects. Still, Mitchell can refer to both forms of life as carbon democracy because he employs the term democracy in two senses: “making effective claims for a more just and egalitarian common world”, and “a mode of governing populations that employs popular consent as a means of limiting claims for greater equality and justice by dividing up the common world” (p. 9). The definitions are certainly arbitrary, but they allow Mitchell to associate democracy in one sense with coal and democracy in the other sense with oil, and use the term throughout the book without having to identify in which particular sense the term is employed. Indeed, the two definitions of democracy seem to be prescribed by Mitchell’s notion of carbon democracy *ex post facto*. Hence, the geophysical properties of coal made democracy in the first sense possible by allowing workers to make effective claims for more equality and justice. The resultant energy infrastructure “helped manufacture forms of agency capable of effective intransigence” (p. 4). The geophysical properties of oil, in contrast, made democracy in the second sense possible by eroding the ability to exercise “effective intransigence”—primarily because oil production employs less workers per unit of energy and can be transported over long distances—and by contributing to the making of a new mode of political calculation that allowed “ways of administering collective life based on the novel principle of unlimited economic growth”—because of oil’s abundance and cheapness. This is, however, not a matter of simple determinism. Just as for Engels “labor” contributed to the evolution of the species, for Mitchell the intellectual labor of neoclassical economists contributed to the evolution of democracy from one carbon-based form of life to another, for the conversion from coal to oil coincided with the making of “the economy” as a technology of “governing populations”.

Coal provided the essential link between industrialization and democratization because it gave power to the workers, especially miners, to sabotage industrial production. The “new political instrument” in the hands of the workers was the general strike, made possible by the material linkages of the energy system that connected the dispersed power of workers and

increased the vulnerability of the owners of industrial capital. The concentration of large numbers of workers at the endpoints and main junctions of the conduits that transported large volumes of coal gave workers a new kind of political agency. This agency, for Mitchell, derived not from the workers' organization and political alliances, or from the development of "new forms of political consciousness" or "repertoire of demands", but from their ability to slow down or interrupt the flows of coal, providing workers with "an effective way of forcing the powerful to listen to those demands". The network of material linkages that connected subterranean chambers to the factories that depended on steam or electric power gave the miners the "technical force" that connected their demands to the demands of other workers: "Workers were gradually connected together not so much by the weak ties of a class culture, collective ideology or political organisation, but by the increasing and highly concentrated quantities of carbon energy they mined, loaded, carried, stoked and put to work." (p. 27). The workers could achieve democratic gains (the eight-hour day, public pensions, the right to vote, the right to form labor unions and political organizations, and the right to strike among other rights) as long as they could sabotage the flows of coal.

The switch from coal to oil in the industrialized countries, a process spanning almost the first half of the 20<sup>th</sup> century, constituted the main mechanism that capitalists and their governments employed to undermine the power of industrial workers, curtailing far-reaching democratic gains and eroding the ones already won by the struggles of workers in the age of coal. Oil produced a different kind of democratic politics for two reasons: the first reason, a historical-geographical reason that has more to do with coal; the second derives from the geophysical properties of oil itself. Whereas coal was crucial for the development of modern industry, oil was incidental because its production developed after modern industry was already running on coal. By geological accident, moreover, oil reserves were far from the industrial regions that developed around locations of coal deposits. Thus, since its earliest development, oil had to be transported over long distances; but with the advent of tankers, this also meant flexible routes. Because of its liquid form, however, Mitchell reasons that oil production and transportation (by pipeline and tanker) did not require the large concentration of workers at critical junctions of the energy system as in the coal regime. The remoteness of oil deposits from industrial regions, together with the particular physiochemical form of oil, made the oil network less vulnerable to sabotage by workers—though, strangely, not by governments or oil companies

—depriving them of the kind of political agency afforded by coal: “the flow of oil could not readily be assembled into a machine that enabled large numbers of people to exercise novel forms of political power” (p. 39).<sup>1</sup>

Oil challenged the struggles for democracy in another way, by giving rise to containerization thus allowing more labor, especially skilled and unionized labour, to be removed from the process of transporting goods: “Much as the fluidity of oil allowed energy to move easily over great distances because it could be pumped onto tankers, eliminating coal heavers and engine stokers, the shipping container made the movement of solid, manufactured goods into a fluid, uninterrupted process” (p. 154). Fluidization of the circulation of manufactured goods also helped outsource manufacturing overseas to countries with lower paid and less unionized workers, threatening workers in the industrialized west with lower wages and unemployment. This movement was briefly interrupted by the rise in oil prices in 1973-74, but resumed after oil prices stabilized.

Oil, according to Mitchell, was also central to establishing control over financial flows in the postwar period by tying the flows of oil to the US dollar and recycling payments for oil into arms purchases. Economists from Keynes to von Hayek blamed the collapse of democracy in Europe in the 1920s and 1930s on the collapse of methods for maintaining the value of money and believed that the future and stability of democracy depended on the stability of the international financial system, *i.e.* on curbing the threat of currency speculation by international banks to democratic politics. This in turn depended on managing the exchange of a number of key commodities, particularly the international flows of oil. Thus the movement of petroleum would provide the “mechanism that stabilised, or threatened to disrupt, the democratic order” (p. 112), primarily because oil, which became the largest traded commodity by value and volume, was priced in US dollars (outside the sterling area). International purchases of oil, and later purchases of US weapons by petrodollars, sustained the value of the US dollar whose circulation had outpaced the accumulation of gold in the US (on the basis of which the value of the US dollar was fixed according to the Bretton Woods agreement) and thus stabilized postwar democracy.

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<sup>1</sup> To make this point, Mitchell is highly selective in treating strikes by oil workers. The 1905 strikes in Azerbaijan, Mitchell argues, were successful because the oil network there resembled that of coal; on the other hand, Mitchell downplays the political significance of the oil strikes of 1945-46 in the US and has nothing to say about the series of strikes by Mexican oil workers in the 1930s, culminating in the nationalization of the oil industry in 1938.

### *Producing Scarcity*

The abundance of oil helped build “machineries of control” to maintain and defeat democracy, but it also presented a problem which led to devising mechanisms to produce oil scarcity. In contrast to coal, the geological and physiochemical properties of oil made members of the oligarchy in the industrialized countries vulnerable to each other rather than organized workers. The abundance and fluidity of oil made it easy to transport, which undermined monopoly over markets and presented a constant threat of low prices and market gluts. Interestingly, oil companies emulated the coal workers by adopting similar methods of sabotage to protect oil prices and their market shares. Thus followed a long series of mechanisms designed to delay the development of oil production and manufacture oil scarcity. Since oil companies’ profits still derived from the sale of oil products, however, and since oil scarcity turned consumers to other sources of energy, scarcity had to be produced not only by limiting the flow of oil to the market but also by ensuring a sustained demand for it (and the power to sabotage other fuels networks). The primary mechanism ensuring the production of scarcity on this side of the equation was the creation of a lifestyle “organised around the consumption of extraordinary quantities of energy”, particularly the “carbon-heavy forms of middle-class American life” manufactured by gas-guzzling cars. Mechanisms for producing oil scarcity combined with oil as mechanisms for curbing democracy: “forms of life that were increasingly dependent on that energy” were exported to Europe through the Marshall Plan, together with a new model of industrial relations that made minor concessions to labor conditional upon increases in productivity: speedups, workforce reduction, and more intensive work under closer supervision. The Marshall Plan subsidized the building of refineries and oil-fired boilers, road construction, US car purchases and car manufacturing in France and Italy, while economic integration through the European Coal and Steel Community allowed cross-border supplies of oil and reduced the number of coal miners, undermining their ability to mount effective strikes and permanently weakening their ability to sabotage the flows of energy.

Oil firms manufactured scarcity by delaying oil production in the Middle East, not by controlling the sites of production and the oilfields themselves, but by controlling the physical conduits that delivered the oil to established markets in Western Europe and Asia, thus protecting their investments in the Caspian and Southeast Asia, and the financial and

bureaucratic conduits that channeled capital for building the transportation infrastructure. The relative dearth of oil producing sites and their isolation from industrial regions helped, while the concessions, which gave oil firms absolute development and production rights over large areas for long periods, provided the primary mechanism by which the development of the infrastructure was delayed. Once the network was in place, however, the oil companies could exercise control over it through another, novel apparatus of control: the oil corporation. The fluid properties of oil allowed the expansion of the network and the power of oil companies over the flows of oil without adding manual labor. As this network expanded in space it presumably exacerbated the political isolation of oil workers from their comrades in industrial regions and undermined the potential for organization and the “threat of democracy”.

Oil companies were never powerful enough to monopolize the flow of oil by themselves; they needed the financial and military support of states, and for this they cast their overseas oil operations as imperial, or strategic interests. Oil workers provided one challenge, but so did new threats from smaller independent producers and the prospect of national governments controlling oil production and transport. The latter was confirmed by the Mexican and Russian revolutions, which removed two important sites from the direct control of the large oil companies. This sharpened the focus on the Middle East, especially on Iraq. With the dissolution of the Ottoman Empire, the concession granted by the Turkish government was no longer sufficient. The military alternative, on the other hand, was as ineffective as it was expensive. New political forces required new mechanisms for the production of scarcity. Mitchell’s discussion of self-determination as a technology of imperial rule, grafted from South Africa to the Middle East by British imperialists, is one of the most interesting parts of the book (chapters 3 and 4). Indeed, the short exposition of the paradoxes of sovereignty in imperial mechanisms of self-government, and the transmutation of the original proposals for a League of Nations to democratize imperialism by placing resources in the former under international control<sup>2</sup>, are far more interesting than the intention of revisiting that history: to establish the mandate system as yet

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<sup>2</sup> Mitchell discusses similar proposals for an International Petroleum Council made at the Bretton Woods meeting in 1944. The IPC was intended to prevent the oil producing countries in the Middle East from taking control over their own oil by placing it instead under an Anglo-American trusteeship. The agreement was never implemented, however, and plans of trusteeship gave way to “strategic concerns” with the onset of the Cold War. Mitchell then goes on to describe, quite implausibly, the Cold War as a “long-term device for...organising financial flows through the control of oil” (p. 123) and therefore the management of democracy.



another mechanism for ensuring European access to Middle Eastern oil to maintain its scarcity and to defeat democratic claims in Europe by controlling oil's abundance.

Mitchell focuses on Iraq as the laboratory in which the methods of the oil companies and imperial powers were perfected over the years. There also the oil companies honed another mechanism for delaying oil production and producing scarcity: provoking and/or prolonging crises. The oil companies could create crises simply by ignoring the demands of governments—demands that were often made to accelerate the development of oil production, such as building pipelines or relinquishing unexplored parts of the concessions. This strategy came undone in the 1960s with the nationalization of the oil industry and the creation of state-owned companies which turned to smaller, independent producers, refiners and distributors and other state-owned oil companies, notably from France and the Soviet Union. American oil companies continued to produce scarcity through the prolongation of crises in the form of military conflicts, particularly in Iraq and Iran, Afghanistan, and Israel/Palestine.

In Saudi Arabia, oil companies turned to the *muwahhidun* to control the pivot in the system of scarcity, Saudi Arabia's surplus capacity, thus giving Political Islam its disjunctive role in the political economy of oil. This is what Mitchell calls McJihad, which he argues has been reproduced in Iraq after 2003 in an alliance between American military power, international oil companies, conservative and Islamic domestic politics. More interestingly and more problematically, Mitchell draws more general conclusions about "what we call capitalism" from McJihad: "McJihad is a term that describes the deficiency of capitalism. The word refers not to a contradiction between the logic of capitalism and the other forces and ideas it encounters, but rather to the absence of such a logic. The political violence that the United States, not alone but more than any other actor, has promoted, funded and prolonged across so many parts of the Middle East over recent decades is the persistent symptom of this absence" (p. 230). The violence associated with the control of oil is a symptom not of the logic of capitalism or its contradictions but of the absence of such logic, of the "deficiency of capitalism".

### *Ineffective Intransigence*

Quite surprisingly, after establishing oil as the weapon with which the ruling classes curbed the advance of democracy in the West—because of the inherent immunity of the oil infrastructure to assembling political agency—Mitchell goes on to argue that delaying the development of an oil

industry in the Middle East “impeded the ability, using the infrastructure of oil, to build effective methods for advancing egalitarian political claims” (p. 86). Indeed, referring to the two pipelines built between 1932 and 1934 connecting Kirkuk to the Mediterranean, one ending in Haifa the other in Tripoli, Mitchell declares that:

“In building the infrastructure of oil, the petroleum companies were also laying out the infrastructure of political protest. The points of vulnerability, where [political] movements could organise and apply pressure, now included a series of oil wells, pipelines, refineries, railways, docks and shipping lanes across the Middle East. These were interconnected sites at which a series of claims for political freedoms and more egalitarian forms of life would be fought” (p. 103).

Throughout the late 1940s workers demanding better wages, pensions, the right to form unions, *etc.* would strike at those sites—the port of Basra, the oilfields, especially the K3 pumping station near Haditha (the point of bifurcation of the Kirkuk pipeline), the oil refinery in Haifa (where workers already engaged in anti-colonial uprisings had organized in 1935 and 1936). If oilfields and refineries were vulnerable to strikes, pipelines were vulnerable to blow-ups. The pipeline carrying oil to Haifa was blown up first in 1936 near Irbid (Jordan) and several times at different locations thereafter. Such acts of sabotage achieved no political gains because the oil companies, backed by imperial governments and complacent rulers, resorted to various methods to prevent oil workers from gaining any control over the network: those involved violent crackdown on striking workers, sabotaging entire governments, hiring temporary workers in one place and arming colonial settlers in another, and finally diverting a pipeline from Saudi Arabia to the Mediterranean to avoid the power of workers in Haifa over its terminus. From this, Mitchell goes on to conclude that:

“the construction of new energy networks replacing coal with oil was the basis of weakening the left in Europe and building the corporatist forms of postwar democracy. Those networks had different political properties from the coal-centered energy arrangements they replaced. Although the oilfields, pumping stations, pipelines and refineries of the Middle East became sites

of intense political struggle, they did not offer those involved the same powers to paralyse energy systems and build a more democratic order” (p. 108).

What “political properties” of the oil infrastructure led to the failure of “intense political struggle” to “build a more democratic order” in the Arab countries? Mitchell does not say. Nor does Mitchell explain how, on one hand, delaying the development of the oil infrastructure delayed the development of democracy qua making effective political claims in the Middle East and why, on the other hand, the political struggles and acts of sabotage at critical junctures at the oil network, once that was in place, did not give workers the “technical force” to make effective political claims. The reader is expected to accept this as a matter of faith: because those struggles were made around the oil network, not the coal network. More contradictions arise: how could the oil infrastructure at once connect the political movements of the Middle East to each other and isolate the oil workers from their comrades in other industries and other regions? Indeed, how is it that the same oil infrastructure that could not provide workers with the power of sabotage could nevertheless afford such power to the state?

“The drilling rigs, pumps, pipelines, refineries and distribution networks of the oil industry were not as vulnerable to stoppages or sabotage as the carbon energy networks of the coal age. Nevertheless, as the Middle East replaced Latin America as the second-most-productive oil region after the United States, the possibilities for local disruption increased... Interrupting or reducing the supply of oil could become an instrument to be used for larger political purposes... The power of sabotage—the capacity to block or slow the flow of oil, a capacity that had previously been monopolised largely by the international oil companies—would be organised not by the workers who operated the oil industry, but by the state” (pp. 144, 145). Would that not imply that the immunity of oil networks to sabotage by workers has its source in something other than the physiochemical properties of oil and the spatiality of the infrastructure it engenders? Mitchell does not address such questions and resorts instead to repeating non sequiturs, as any attempt to resolve such contradictions would shift the theoretical focus from the “political properties” of physical networks to the social and political determinants of political movements, to sources and limits to political agency outside the physical properties of things, and this requires a different kind of theory with radically different consequences for democratic politics.

*Oil, the Economy, the Crisis, and the Market*

One of the most interesting arguments that Mitchell makes in this book concerns the manufacturing of the supply and demand model of the oil market out of the shocks of the 1970s. It is however based on a tenuous argument about the contribution of (representations of) coal and oil to “making the economy”. Mitchell has written about “the economy” as a “product of socio-technical practice” since the late 1990s, maintaining repeatedly that the discipline of economics has produced “the economy” as an object of power and knowledge while purporting to describe a freestanding, self-regulating system. Not in any of these instances did Mitchell ascribe to oil, or coal, any role in the production of that socio-technical object. In *Carbon Democracy*, however, coal and oil are placed at the origin of this novel “machinery of government” (p. 109).

It so happens that Keynes was reading Jevons’s *On the Coal Question* while he worked on his *General Theory*, in which Keynes illustrates the government’s role in stimulating private enterprise with an example employing “disused coalmines”. Keynes suggested the Treasury fill exhausted coal mines with bottles filled with banknotes and seal them with municipal rubbish, then leave it to private enterprise to dig the notes up again. This would solve the problem of unemployment and increase the income of the community and its capital wealth. It so happens also that, as Jevons had predicted, Britain’s coal reserves were being depleted at an unprecedented rate. For Mitchell, Keynes’s metaphor marks a momentous moment in economic thinking at which the flow of finite resources was replaced by the infinite circulation of money (without the bottles, of course). From this moment on, the supply of coal was no longer “a practical limit to economic possibility”: “the economy”, as “the sum of all the moments at which money changed hands”, could now grow indefinitely, exponentially, “without getting physically bigger”, *i.e.* without consuming more resources<sup>3</sup>.

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<sup>3</sup> Coal, for Mitchell, contributed to the making of the economy more directly, by powering the machines that fabricated token money. The circulation of coins required their availability in large quantities, which the steam-driven rolling mills, powered by coal, were able to provide. Mitchell also traces the very notion of “exponential growth” to Jevon’s statistical measurement of British coal which made it possible to measure rates of growth and depletion of resources until economics became concerned with money and prices, creating a fissure between nature and society and “the not-quite-natural, not-quite-social space that came to be called the economy” (p. 132). Note here also that in his earlier writings on the economy Mitchell mentions neither coal, nor Jevons, nor growth.

Thus, somewhat paradoxically, the depletion of coal put it at the origin of the production of a socio-technological object predicated on the notion of limitless growth. Oil, in contrast, contributed to the production of this object in three ways: [i] its abundance and ease of transport made oil appear as inexhaustible; [ii] its price declined throughout the 20<sup>th</sup> century such that the consumption of increasing quantities of oil did not translate into commensurate increase in costs, especially given that costs of depletion and the environmental and climatic consequences of using oil were not included in the costs of oil—as such, the costs of oil appeared not to represent a limit to economic growth; and [iii] the industrialization of agriculture and the rise of synthetic materials appeared to remove natural limits to growth from the use of land and resources. Mitchell does not provide any evidence of how the appearance of abundance and the low costs of oil contributed to forging “the economy” as an object of politics predicated on notions of limitless growth, or of how all this contributed to governing democracies. Yet, Mitchell goes on to conclude that “the economy”, as a new mode of democratic rule, displaced democratic debate and set limits to egalitarian demands by making the management of “day-to-day machinery of monetary circulation” the “central task of government” and specialized economic expertise.

Mitchell enrolls in the fetish of “the economy” by rendering spaces and practices outside the “day-to-day machinery of monetary circulation” invisible, nonexistent. The same applies to Mitchell’s account of “the market”. In October 1973, the governments of oil producing countries made a unilateral decision to raise the posted price of oil by 70%, restoring the posted price to what it was in 1971. Although the posted price is not the actual price paid for oil, but the basis for calculating tax rates on oil profits, the rise in the tax rate was misinterpreted as a rise in the market price of oil and linked to the decision by Arab countries to cut supplies to the US. Neither decision was aimed at raising oil prices and OPEC had no role in the embargo. Yet, western commentators collapsed the two into a single event and the economists proceeded to fabricate the laws of supply and demand by organizing the two events in such a way that the laws of the market could operate. Mitchell then concludes that the crisis paved the way for “the elaboration of new modes of government, using the new machinery of ‘the market’”. From then on, “almost any conflict between rival political claims, according to this new technology of rule, was to be grasped—and governed—as a matter of simple supply and demand” (p. 177). Market mechanisms and devices replaced democratic methods of governing matters of public concern, *i.e.* “the market” replaced “the economy”.

### *The Limits of Carbon Democracy*

Nothing about carbon democracy implies that, as a form of life, it has to be accepted as an immutable given. Indeed, as Mitchell describes it, carbon democracy has been deliberately manufactured and there is much about it that compels us to revolutionize our existing forms of life and work towards more just and egalitarian forms of life. In many ways, however, carbon democracy is the socio-technical product of *Carbon Democracy*—it is produced in the process that purports its deconstruction and for that *Carbon Democracy* cannot offer any viable methods for overcoming carbon democracy, or evacuating it. Instead, the political possibilities it intimates reaffirm carbon democracy because they are determined by it. The object of critique and the method of its transcendence mime each other. “It is the only game imagined”, as Donna Haraway (1997: 34) would say.

Abundant, low-cost oil made possible the representation of material life as “a system of monetary circulation”, and this in turn “made possible a form of politics that was dematerialized and de-natured” (p. 235). “The possibility of more democratic futures”, for Mitchell, depends not on producing competing representations but on “[a]cknowledging that the size of the main source of conventional [oil] reserves—in the Persian Gulf—is an uncertain techno-political question”. The unfolding of “the course of carbon democracy” depends on “this kind of possibility”, of transforming uncertainty about the size of conventional oil reserves into “political uncertainty” (p. 252). Yet, by the time Mitchell makes that argument, he had already accepted the certainties and representations of peak oil theses about the geological finiteness of oil and the imminent end of the fossil fuel era, and planted his feet firmly next to the Malthusian for whom “politics will be determined by the limits of nature” (p. 238). Renaturing politics requires abandoning the “ways of living and thinking that treat nature as an infinite resource”, and making peak oil a matter of public debate involving ordinary citizens, as is already the case, presumably, with “catastrophic climate change”. By bringing peak oil into public debate, Mitchell imagines we will create the possibility for a more democratic world. The political possibilities that emerge from the “socio-technical understanding of carbon democracy” can only present themselves as another form of carbon democracy, leaving the political logics that produce injustice and inequality intact.

Despite the attempt to re-materialize politics, *Carbon Democracy* is based on reifications that eliminate materialism altogether from the realm of politics. Mitchell's account of making "the economy" participates in the process it purports to describe by presenting "the economy" in the same form as the (neoclassical) economists themselves imagine it: circulation of money and goods in markets removed from definite social relations of production and exploitation, the historically and geographically varying forms of accumulation, and the immanent contradictions of capitalist processes that lead to periodic crises. If Elmar Altvater had erroneously made the logics of capitalism congruent with the physical properties of fossil fuels, as Mitchell correctly observes (p. 7), Mitchell eliminates capitalism altogether from the natural history of carbon democracy and replaces social relations between persons with the relations of things to persons such that, to borrow from Marx (1864), the "definite social connections appear as social characteristics belonging naturally to things". The "political properties" of the energy networks displace the political organization of workers. The socio-technological linkages and physical networks that owe their political agency to the properties of the fuels they carry displace the sociopolitical and economic context in which modern, liberal democracy has developed.

Accordingly, political consciousness is eliminated entirely from Mitchell's account of democratization and the building of mass political movements. There is no place in Mitchell's account of the socio-technological linkages that gave rise to the mass strike and the workers' power of sabotage for other kinds of linkages that played a decisive role in democratization by circulating political ideas and forging collective political ideology, such as mass circulation newspapers and other periodicals, political parties and organizations, *etc.* Sans surprise, Mitchell's one-sided reading of Luxemburg on the mass strike, fixated as it were on the inaccuracy of her "fluvial metaphor" (p. 24), misses the point. For Luxemburg (1906), the mass strike played a decisive role in forging the labor movement by awakening "class feeling and class-consciousness in millions upon millions as if by an electric shock", consolidating scattered economic struggles for better working conditions into a mass revolutionary political struggle. Those struggles were scattered but not "isolated", as Mitchell would have it, waiting to be connected by the railways and canals that carried coal—they were already connected by the common struggle against the intolerable "social and economic existence which [workers] had patiently endured for decades in the chains of capitalism". The mass strike provided the "living political school" for the education of the workers "in the continuous course of the revolution".

Specific economic gains could be defeated, but “the most precious, lasting, thing in the rapid ebb and flow of the wave is its mental sediment: the intellectual, cultural growth of the proletariat, ... which offers an inviolable guarantee of their further irresistible progress in the economic as in the political struggle”. It may be that “the era of the mass strike was over” by 1948 (p. 152), and the proletariat is no longer the privileged revolutionary subject, but scattered struggles today are more connected in their common struggle against intolerable existence than at any other time—solidarity best expressed in the pizza pies that protesters against crony capitalism in Tahrir Square in Cairo gifted to union teachers striking at the Capitol in Madison, Wisconsin, so that those can continue their protest against the state’s attack on collective bargaining rights and other rights and benefits won through previous struggles.

Ultimately, it is not clear what the “socio-technical understanding of carbon democracy” would achieve in the continuous course of the political struggle for democracy, except perhaps forestall the possibility of imagining democratic futures beyond carbon democracy while we debate the forms of life we would like to live after peak oil.

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