Politicizing Climate Change and Thinking Beyond Fossil Capital

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Despite alarming and catastrophic risks to the climate conditions that have been conducive to human civilization, the fossil fuel industry continues to push for aggressive new extractive processes, infrastructure projects, and emissions increases. This paper will argue that the depoliticization of climate change, as a more generalized depoliticization of nature, environment and ecology, has contributed to the staying power of the fossil fuel industry. By examining several theories that attempt to politicize the nature(s) produced and advocated for by the fossil fuel industry, this paper will offer several resources that could contribute to a properly politicized understanding of nature, ecology, and climate change as it relates to the fossil fuel industry.

Beginning with Timothy Mitchell's *Carbon Democracy* thesis, this paper will consider the role of labour, power and expertise under relations of fossil capitalism. Secondly, this paper will consider Andreas Malm's *General Formula of Fossil Capital* and the role of emissions as a necessary function of capital accumulation. Finally, this paper will consider the role of the *capitalist creation of space*, drawing from Malm and Lefebvre, as well as Matthew Huber's work on the role of fossil fuels in the cultural and geographic imagination. The paper will conclude by considering the role of imagination in envisioning alternate political futures.

Depoliticized Nature

Framing the problem of climate change or 'anthropocene' through the physical sciences and mathematical modeling – a mere policy-wonk problem to be managed by technocratic experts- contributes to a narrow scientific focus that presents the problem of climate change. As a problem managed by technoscientific elites, the global, undifferentiated population of the planet becomes universally responsible for addressing the issue of climate change, with all individuals universally tasked with tightening their carbon belts.

This royal 'we' obfuscates the history, politics and agency involved in the creation of anthropogenic climate change in the first place. Indeed, Demeritt points out that the 'objective' or scientific framing of climate change

> as a global problem of GHG emissions is an essentially 'Northern' one that ignores important social differences between 'luxury' emissions of GHGs from fossil fuel use in developed countries and 'survival' emissions from agriculture in developing countries.[1]

[1] Demeritt, "Science Studies, Climate Change and the Prospects for Constructivist Critique," 467.

The discourses on climate change that speak simply of a carbon budget that 'everyone' must abide by fail to take into account the history of colonization, neo-colonization, and under-development of the global south, as well as responsibility the global north bears for using up the atmosphere's carbon-carrying capacity – a global commons, used up by a relative few. Swyngedouw further describes this phenomenon, whereby the climate change problem is portrayed as global in scope and "is constituted as a universal humanitarian threat. We are all potential victims. 'THE' Environment and 'THE' people, Humanity as a whole in a material and philosophical manner, are invoked and called into being."[2] The result, explains Swyngedouw, is a flattening of the antagonistic human actors and the 'natures' they might envision, a silencing of ideological and social difference, and a denial of democratic "conflicts about different possible socio-ecological configurations."[3]

The deployment of nature, or in this specific discourse, the concept of climate change, serves a particular ideological function in that a specific and particular socio-economic order is imagined alongside the prescribed ecology. Political ideologies always include a vision of nature or ecology, implicit or explicit – acreages, suburbs, Malthusian scarcity, frontiers, hydroelectric dams and rapid industrialization are among some of the features that have been highlighted by political regimes at one point or another. In contemporary discourses on anthropogenic climate change, the concept of a carbon and greenhouse-gas 'budget' serves an ideological function, in that it is the basis through which proposed international agreements allow historical GHG-emitting nations to 'transition' while nations in the global south face increased restrictions on potential economic activity. The issue, as Swyngedouw puts it, is that "the ecological problem does not invite a transformation of the existing socio-ecological order but calls on the elites to undertake action such that nothing really has to change, so that life can basically go on as before."[4] The fact that anthropogenic climate change itself is presented as a techno-managerial problem to be resolved by elites betrays its post-political dimension; Demeritt's observation of a highly technical framing that "turns people off" can be understood in this sense as an explicitly post-political strategy, whereby "climate change has no positively embodied political name or signifier, it does not call a political subject into being"[5]. No promise for the future is actually imagined in the anthropogenic climate-change scenario, aside from the continued reality of existing power relations. The particular demand to reduce GHG emissions is not paired with any meaningful socio-environmental change.

[2] Swyngedouw, "Depoliticized Environments," 268.
[3] Swyngedouw, 268.
[4] Swyngedouw, 270.
[5] Swyngedouw, 270.

It is curious that nature finds itself conceptually and ideologically bound to powerful conservative forces in these examples – notably, fossil-fuel aligned capital. What's more interesting is that within the realm of politicized discourse, these concepts creep even into highly critical voices. Naomi Klein, for example, articulates in the same breath that a new civilizational paradigm is needed because "we have pushed nature beyond its limits" and that a new paradigm would "respect natural limits."[6] Here Klein imagines limits (say, for example, 350ppm of atmospheric CO2) alongside a new green economy that eschews capitalist growth. Considering Swyngedouw's critique, however, one finds that Klein is merely imagining current socio-environmental conditions in this respect-natural-limits ecology: the social world(s) and political relations that accompany this proposed ecology-with-limits is not far from what currently exists. This is not to discount the critique and solutions proposed by Klein (nationalizations of key industries, planning, a strong public sector) but merely to illustrate the point that the production of natures, even proposed natures, is inherently political. "The production of socio-environmental arrangements implies fundamentally political questions, and has to be addressed and legitimized in political terms," explains Swyngedouw, and requires "the naming of positively embodied ega-libertarian socio-ecological futures that are immediately realisable."[7] Jodi Dean, in a reaction to Naomi Klein's *This Changes Everything*, suggests that "It's like Klein feels so fully trapped within the economic system we have that she can't break free even as she insists we must break free. There has been and still is a name for this break – communism."[8] Dean argues that Klein should "point to an internationalist egalitarian vision," a more substantial vision than the "vague notion of democracy understood as multiplicity combined with a romantic vision of indigenous people."[9] While Dean's suggestion is not necessarily the fully imagined socio-ecological future Swyngedouw suggests is necessary, it does point to some sort of alternative terrain beyond. Elsewhere, Swyngedouw has made similar appeals to the necessity of an alternative political vision, arguing that the key task "is to stop and think, to think communism again[…] and its meaning for a twenty-first century emancipatory, free, and egalitarian politics."[10] This 'properly' politicized, future-oriented vision of the future will be revisited at the conclusion of this paper.

Carbon Democracy?

[6] Klein, "Capitalism vs. the Climate."
[7] Swyngedouw, "Depoliticized Environments," 273.
[8] Dean, "This Changes Some Things."
[9] Dean.
[10] Swyngedouw, "The Communist Hypothesis and Revolutionary Capitalisms," 316.

Mitchell's thesis argues that the labour involved in the extraction of fossil carbon contributes heavily to the shape and form of society. Coal mining, relying historically on relatively autonomous workers concentrated en-masse on-site in the process of coal extraction, formed a bottleneck for capital: labour action at these precise nodes (often along with other key transportation nodes) could bring an entire economy screeching to a halt. As such, Mitchell attributes the concessions of the welfare state to the power of mass organized labour, and specifically its ability to paralyze and/or disrupt the extraction and distribution of coal-based fossil energy. The workers at junctions of these narrow energy channels gained "a new kind of political power" due to the concentrated flow of energy that "they could now slow, disrupt or cut off."[11]

However, the power obtained by mass democracy through the gatekeeping of coal-based energy was circumvented in the post-war era. "Governments sought to weaken this unusual power that workers had acquired," explains Mitchell, by "switching form using coal to using oil and gas."[12] Oil requires a smaller workforce and provides greater energy yield; pumping stations and pipelines are less reliant on labour and thus less vulnerable to strike action (as opposed to mines and railways). Paired with an emerging idea of 'the economy' as facilitating limitless growth, oil

> in ever-increasing quantities […] could be counted on *not to count*. […] Economics became a science of money; its object was not the material forces and resources of nature and human labour, but a new space that was opened up between nature on one side and human society and culture on the other.[13]

This supply of oil was guaranteed, of course, by a range of military interventions, coups, and repressive regimes in oil-rich jurisdictions. What makes Mitchell's analysis so interesting in this context, however, is the picture of socio-technical assemblage that he paints: the fantasy of post-war limitless growth and mass production/consumption was made possible by supplies of cheap oil and the ability of governments to command and manipulate these supplies without (successful) popular intervention.[14] Furthermore, the expert 'petroknowledges' necessary for oil extraction coupled nicely with the general rise of economic expertise; 'the economy' became "an object whose management was the central task

[11] Mitchell, "Carbon Democracy," 2009, 403. For a historical case study in the Alberta-BC context, see Langford, "Working-Class Power and the Collapse of the Domestic Steam Coal Market: Lessons from the Crowsnest Pass in the 1950s and 1960s."
[12] Mitchell, *Carbon Democracy*, 2013, 236.
[13] Mitchell, 234.
[14] Mitchell's description certainly depicts *contestation* over the control of resources in oil-rich jurisdictions, but these were largely unsuccessful from a mass labour or popular control (read: non-elite) perspective.

of government, and which required the deployment of specialist knowledge."[15] This would contribute, eventually, to the rise of technocratic and 'post-political' managerial politics, where 'the economy' and 'economic growth' becomes the obfuscation for all manner of upward wealth transfer.[16]

The takeaway from Mitchell's analysis is that the forms and modes of socio-technical assemblage through which energy is extracted, obtained, or produced have a widespread (but non-deterministic) effect on societies and their operation, only a fraction of which become politicized. No vote or public debate was held regarding how and why and what kind of energy should be extracted, to what end, at what rate, and for whose benefit: this was decided in boardrooms and by the compulsive logic of self-expanding capital. Mitchell's conceptualization affords at the very least a springboard through which such an expansive project could be imagined. Mitchell's analysis suggests carefully thinking through whatever lies beyond the age of fossil fuels: the socio-technical assemblage that produces, extracts, and distributes energy will also form the pathways of power within society, and its points of vulnerability will determine where and to whom it will make concessions.[17] It would be politically expedient, then, to have a socio-technical 'fix' in mind that includes vulnerabilities that avail to mass democratic demands; as Mitchell puts it, "the need to reassemble socio-technical worlds can open up new points of vulnerability, where experts and professional politicians might become liable, once again, to the claims of those through whose lives new arrangements must be built."[18]

More modestly, however, Mitchell's analysis offers a way in which to consider Canada's current fossil-fuel infrastructure. The strengths of the fossil fuel industry (as opposed to coal) are largely as Mitchell describes them: specialized experts and labour follow bitumen from extraction to processing to transportation to resale, posing little opportunity to leverage democratic demands. This system has also proven remarkable in establishing dependence of the Alberta government on oil revenues to fund

[15] Mitchell, "Carbon Democracy," 2009, 417.
[16] For more on the problem of post-politics and the political imagination, see Fisher, *Capitalist Realism*. On 'the economy' and neoliberalism both as a 'practice' and ideological device, see Harvey, *A Brief History of Neoliberalism*.
[17] Evidence would suggest that monopoly generators and producers of energy are well aware of this potential vulnerability; Andrew Ross, in discussing Arizona's attempts at implementing solar power, describes how "Ed Fox, Arizona Public Service Electric Company's (APS) sustainability officer, acknowledged that the Arizona Corporation Commission's distributed generation requirement was 'a direct threat to our profitability' and that 'the transition to a low-carbon future would be a real challenge for a monopoly "incumbent" like APS 'to remain viable.'" Ross, *Bird on Fire*, 159.
[18] Mitchell, *Carbon Democracy*, 2013, 241.

operations, establishing unreasonably low taxation expectations in return for oil-revenue funded government services, all while keeping rent on resources low.[19]

Vulnerabilities in the flows of Alberta's bituminous carbon are therefore few in the sense of socio-political leverage. Real vulnerabilities are present, however, as increasing risk: unpriced environmental liabilities, judged by Alberta's Auditor General to cost over $20 billion;[20] increasing risk and costs related to climate-change disasters, such as the 2013 Alberta floods ($6-billion)[21] and the 2016 Fort McMurray fire ($3.58-billion).[22] In some respects this might be considered the increasing 'end' of Cheap Nature as proposed by Jason Moore. While fossil capital was able to appropriate the unpaid (or "free") work involved in producing bitumen (over geological timescales) and also the "free" service of "storing" wastes associated with production (tailings ponds, CO2 emissions), Moore asks if we are "witnessing the exhausting of the productivity and plunder dialectic that has underwritten capital accumulation" for centuries.[23] In short: the unmonetized 'ecosystem services' that have provided both the raw materials and dumping ground for capital are increasingly stressed, saturated and rare, with new frontiers of unpaid work (both non-human and human) difficult to appropriate. "On the other hand," writes Moore, "the accumulation of waste and toxification now threatens the unpaid work that *is* being done".[24] In the case of Calgary's floods or Fort McMurray's fires, the actual built environment that enables capital to function (cities) and enables the free unpaid work of social reproduction increasingly finds itself under siege. Andreas Malm explains capital's expansionary logic in a similar manner:

> Planetary boundaries do not appear on the radar. Capital qualitatively ignores nature while quantitatively overtaxing it; the material aspects of production are irrelevant, yet value would not be valorised without annexing all the material substrata on earth: the blindest bull locked in the most fragile china shop.[25]

To sum up: oil- and gas-based fossil fuels lend themselves easily to modes of expertise and economic thought that enable the fantasy of endless capitalist growth, while minimizing nodes at which mass labour (and therefore mass democratic demands) can be made. Capitalist accumulation, in addition to

[19] Adkin and Miller, "Fossil Capitalism and the Political Ecology of Change," 534–35. For more regarding Alberta's financing and revenues, see Taft, McMillan, and Jahangir, *Follow the Money*.
[20] Weber, "'Toxic Legacy'"; Nikiforuk, *Tar Sands*, 77–92. This $20-billion is solely for the tailings ponds; other environmental liabilities include abandoned oil and gas wells, which could range from $29-billion to $82-billion; see Nikiforuk, "A Bold Clean-Up Plan for Alberta's Giant Oil Industry Pollution Liabilities."
[21] Wood, "Province Boosts Cost of Alberta Floods to $6 Billion."
[22] Snowdon, "$3.6B Insurable Cost of Fort McMurray Wildfire a Canadian Record, but Doesn't Measure the 'Real Tragedy.'"
[23] Moore, *Capitalism in the Web of Life*, 304.
[24] Moore, 305.
[25] Malm, *Fossil Capital*, 288.

its productive circuits of accumulation, relies on the appropriation of the unpaid 'free gifts' of nature in the form of raw materials and social reproduction / unpaid work. As these unpaid 'ecosystem services' frontiers are exhausted, toxified, and offer diminishing ecological surpluses, the material ecological conditions for continued accumulation are potentially threatened.

The General Formula of Fossil Capital and the Fossil-Capital Production of Space

Malm argues that CO2 emissions are a necessary byproduct of capitalist production, necessary and integral to capital accumulation itself: as such, every transformation of M-C-M' includes, also, the transformation of fossil fuel into CO2. "Fossil capital, in other words, is *self-expanding value passing through the metamorphosis of fossil fuels into CO2.*"[26] Malm incorporates the throughput of fossil fuels in the process of capitalist valorization, arguing that it is the "biophysical shadow of Marx's general formula of capital."[27]

This is a very different point that that made by Mitchell: rather than a socio-technical consequence of the particularities of various fossil fuels, Malm argues that the system of capitalist valorization itself, as it processes raw inputs and socially-necessary-labour and puts these recombined products to market, all necessarily requires the input and combustion of fossil fuels. This analysis suggests that the expanding use of fossil fuels and its associated emissions is integral to capitalism, rather than a mere historical circumstance:

> Constantly increasing quantities of CO2 are a no-less-necessary aspect of the production of surplus-value than market transactions; the combustion of fossil fuels in their solid form and the consequent release of CO2 do not in themselves generate any value for the capitalist, but they are material requirements for value creation.[28]

Malm argues that the feature of fossil fuels that made it so amenable to capitalist development involved its ability to be autonomously consumed. Other potential sources of power – such as flows of water over the earth turning wheels, for example – would've required planning the allocation of limited and geographically bound resources. This runs counter to the anarchic law of competition; Malm cites Rosa Luxemburg in explaining that the rules of free competition within bourgeois market relations are necessarily anarchistic:

> While meeting each other ex post in the marketplace, the actors have no reason to share plans for production ex ante; competition throws a spanner in the works of mutual adjustment, blocks

[26] Malm, 290.
[27] Malm, 290.
[28] Malm, 289.

> the sharing of information and upsets collective plans. Capitalists may meet in general assemblies to discuss all sorts of matters – including price fixing and union busting – *but not to elect distributors with the right to regulate their use of resources.* Here anarchy must prevail.[29]

The transportability of fossil fuels – the ability to take its stored energy and release it at a place of one's choosing, in a factory or workshop unaffected by the availability of natural features on the landscape – made it perfectly suited for anarchic market relations. No rationing of a common source of power had to occur; the "anarchy of capital had to become fossil."[30]

This link between the geography of capitalism and the portability and decentralized use of fossil fuels lends itself easily to Henri Lefebvre's distinction between *absolute* and *abstract* space. While natural features are included within absolute space – such as caves, springs rivers, mountain-tops, valleys – these natural features are 'smashed' by capitalism, to be replaced by the abstract space of capitalist accumulation. In abstract space, "capital tears material components from their natural beds and heaps them up in places of its own choosing … capital carries away what it needs and pours it out in places where the production of more exchange-value can best proceed."[31] Neil Smith, in his work on the production of nature, states in a similar fashion that

> No part of the earth's surface, the atmosphere, the oceans, the geological substratum, or the biological superstratum are immune from transformation by capital. In the form of a price tag, every use-value is delivered an invitation to the labor process, and capital – by its nature the quintessential socialite – is driven to make good on every invitation.[32]

The particularities of absolute space are reorganized and reorganized into their abstract form, replaced by the singular logic of accumulation. This results in a paradoxical situation: a great immobile apparatus (extraction, refineries, transportation infrastructure) exists to make fossil energy itself mobile; and this newly mobile fossil energy is *distributed* through diffused throughout anarchic market relations but

[29] Malm, 296.
[30] Malm, 298.
[31] Malm, 301.
[32] Smith, *Uneven Development*, 79. In a similar fashion to Malm's theorization of CO2's role in fossil capital and echoing Moore's statements regarding ecological toxification and falling rates of ecological 'surplus', Smith argues that "Pollutants are integral products of the production process though not its immediate goal … the production of nature is not the deliberate goal of production." Smith, 88. Smith makes the argument that capital's universalizing ambitions end up creating barriers to its own future; "Today crisis does not spring from the interface between society and an external nature but from the contradictions at the heart of the social production process itself. Insofar as social crises are still attributed to natural scarcity today, this should be seen as a produced scarcity in nature" Smith, 84. From this we might read the 'scarcity' of available carbon capacity in the atmosphere as one thoroughly produced by capitalist production.

always *centralised* in particular places, along with other raw materials and labour, for the purposes of commodity production.[33]

In short, then: fossil capital is a necessary *feature* of capital itself, with fossil energy a necessary component in the continuous valorization process of M-C-M', and the emission of CO2 a biophysical 'shadow' of capital accumulation itself. Fossil energy is a material requirement of capital accumulation and emissions a necessary result. Due to the anarchic and unplanned nature of markets and their allocation of resources, a spatial strategy that can allocate energy in and through a landscape according to price signals is necessary: the natural features of absolute space have to be overcome by abstract space and the logic of accumulation, bringing about space that "is simultaneously disconnected from the landscapes of everyday lives, and at the same time crushes existing difference and difference."[34] The globe and all its extant particularities becomes the workshop of capital, where mountain-tops and bituminous sands are extracted and recombined with labour and raw materials to produce growing streams of capital. The limitless expansion of capitalist growth "*advances by ordering humans and the rest of nature in abstract space and time* because that is where most surplus value can be produced."[35] Malm's argument for the role of fossil capital appears convincing in the case study of China as the 'chimney of the world.' Noting the correlation of investment, carbon intensity, carbon emissions and the availability of cheap labour in the Chinese case, Malm observes that *"where capital goes, emissions will immediately follow*" and that "*the stronger global capital has become, the more rampant the growth of CO2 emissions."*[36]

The consequences of the 'fossilized strength' of capital are manifold. The problem of discordant values – of exchange value trumping use-value, to the point of dysfunction[37] -- is particularly grievous in the case of fossil capital. The abundant resources afforded by renewables, and solar power specifically, simply do not spur investment in transition because the returns to be gained from fossil capital dwarf those in renewables, "at the same time that its social use-value – slowing down climate change – rose

[33] Malm, *Fossil Capital*, 299–301.
[34] Smith, *Uneven Development*, 226.
[35] Malm, *Fossil Capital*, 308.
[36] Malm, 353.
[37] The case of housing stock used for speculative gain, and distributed based on ability to pay rather than need, is one specifically egregious example. See Harvey, *Social Justice and the City*, or more recently, Marcuse and Madden, *In Defense of Housing the Politics of Crisis*.

towards priceless heights."[38] Malm explains this completely seemingly illogical state of affairs, where renewable 'flows' of energy (wind/water) go ignored:

> the spatiotemporal profile of the flow does not allow for anything as lucrative as the primitive accumulation of fossil capital: since the fuel is not hidden away in a separate chamber, but rather hangs like a fruit for anyone to pick, there is little surplus-value to extract in its production – no gap between the location of the energy source and that of the consumers in which the chasm between capital and labour could be reproduced.[39]

Alongside this issue is the fact that renewables simply add energy to the growing 'energy pie,' rarely displacing fossil energy.[40] Malm points out that economic incentives alone cannot perform the transition without the invocation of the powers of the state; "there must be a 'return to planning, in some guise or other'. … There is no alternative: planning is 'inevitable.'"[41] Realistic scenarios that address the transition on an adequate timescale call for 'planned economic recession,' which Malm accurately points out would "of course objectively constitute a war against capital,"[42] disrupting the process of M-C-M'. Such an antagonistic confrontation with fossil capital seems an impossible and improbable course for governments in the absence of a mass movement, despite growing threats to life.[43]

Imagining Post-Fossil Fuel Futures

If Mitchell's analysis conveys the political power of fossil capital and its socio-technical configurations, Malm makes apparent the deeply embedded logic of fossil-fuels with capitalism itself. The role of fossil fuels is not limited to the socio-technical or economic logic, however: it functions also in the cultural imaginary. While petro-culture may seem at first glance a less pressing issue than the macro-forces of fossil capital and corporate power, it is petro-culture that saturates the modern imagination, precluding alternatives and convincing individuals that the current state of affairs is not only the singular possible world, but the only desirable one.

Matthew Huber argues that oil has 'energized' the life of Americans, embedding itself deep into their everyday lives (transportation, suburban life, the conveniences of mass consumption) to such an extent to be synonymous with freedom itself.[44] Should an alternative society be proposed and

[38] Malm, *Fossil Capital*, 371.
[39] Malm, 372.
[40] Malm, 382.
[41] Malm, 382.
[42] Malm, 384.
[43] Malm, 385.
[44] Huber, *Lifeblood*, 166. Again, on freedom as a neoliberal trope (and specifically always negative freedom-from, rather than a positive freedom-to), see Harvey, *A Brief History of Neoliberalism*.

envisioned according to different principles – democratic control of the economy under socialism, for example – addressing the linkage between freedom and oil is necessary. "If socialism is about emancipation and freedom we simply cannot deny the role that energy must play in this emancipation. […] our understanding of a communist future must include solar energy at its core."[45] Huber rightly points out that this goes quite contrary to the language and framing used by social movements focused on environmental justice: the focus on the small-scale, localization and agriculture/food politics and 'degrowth' risks being highly unpalatable to a popular audience, even in the face of climate disaster. Huber suggests a solar communism as an alternative to the local emphasis;[46] this is similar in many respects to the critique of localism and folk politics made by Nick Srnicek and Alex Williams in their futurist manifesto.[47] Leigh Phillips has similarly critiqued localism and proposed anti-austerity, 'big-kit' solutions to the climate crisis.[48]

Huber's vision of an emancipatory future does not come from merely democratizing the extant productive capacity but "rather must emerge out of the conditions set by the current mode of production […] fossil-fuel energy needs to be viewed as a material condition of an emancipatory future based on cleaner and renewable fuels."[49] Huber points out that the petro-cultural imaginary was thoroughly *anti-urban* in character (particularly its suburban aspects), and that, following Henri Lefebvre, the specifically *urban*—"with its diversity and social concentration – contains tremendous revolutionary potential. […] The urban holds promise not simply because of coffee shops and walkable communities but because of the political energy and the forms of sociality that are made possible within urbanized geographies."[50]

If the promise of socialism involves redirecting humanity's productive capacity to democratic aims, rather than the logic of capital accumulation, the definition of these productive capacities must be sufficiently broad. It is not simply democratic control of coal plants and pipelines and assembly lines that is required; rather, the productive capacities of humanity and all its potential socio-technical energy assemblages must include and envision also the production of nature[51] (and all its waste streams), as

[45] Huber, *Lifeblood*, 166.
[46] Huber, 166.
[47] Srnicek and Williams, *Inventing the Future*.
[48] Phillips, *Austerity Ecology & the Collapse-Porn Addicts*.
[49] Huber, *Lifeblood*, 167.
[50] Huber, 168.
[51] "Capitalism creates the technical means but cannot itself fulfill the promise. The option as Marx said is socialism or barbarism; either is a unity of nature. The cruel irony of this option is more acute today […] Socialism is neither a utopia nor a guarantee. It is however the place and the time where and when the unity of nature becomes a real

well as the production of *space*, including underdeveloped hinterlands as well as the production of urban space.[52]

All of this requires substantial imagination: to offer a compelling emancipatory vision that can counter the age of fossil capital requires the displacement of decades of advertising and marketing for a particular kind of freedom. To re-imagine the emancipatory production of natures and spaces is no small task, but it is from this starting point that the broader tasks become feasible.[53]

possibility. It is the arena of struggle to develop real social control over the production of nature." Smith, *Uneven Development*, 89.

[52] "*The sixth myth is that any radical transformation in social relations in urbanizing areas must await some sort of socialist or communist revolution that will then put our cities in sufficiently good order to allow the new social relations to flourish*. Opposed to this is the idea that the transformation of social relations in urban settings has to be a continuous process of socioenvironmental change, a long revolution that should have the construction of an alternative society as its long-term goal." Harvey, "Cities or Urbanization?," 65.

[53] "Marx makes it clear that imagination is a *vital power*; the power to imagine, and the role of the intellect to conceive and to analyze, is a vital force that only we humans have at our disposition… Vital powers are sources of magic, of concrete, earthly magic. Marx was clear about where the magical force of a transformative politics would come from: it would come from releasing these collective vital powers." Merrifield, *Magical Marxism: Subversive Politics and the Imagination*, 149.

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