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THE HUMANISATION OF NATURE AND THE NATURALISATION OF MARXISM

Radical Thinkers 

A large, stylized graphic of the letter 'A' formed by two parallel lines, serving as a background for the title text.

Alfred Schmidt **The Concept of Nature in Marx**



A Review of *The Concept of Nature in Marx* by Alfred Schmidt, *Marx and Nature: A Red and Green Perspective* by Paul Burkett, *Fossil Capital: The Rise of Steam-Power and the Roots of Global Warming* by Andreas Malm, and *Living Factories: Biotechnology and the Unique Nature of Capitalism* by Kenneth Fish

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Abstract

This is a review of *The Concept of Nature in Marx* by Alfred Schmidt (2014 [1971]), *Marx and Nature* by Paul Burkett (2015 [1999]), *Fossil Capital* by Andreas Malm (2016) and *Living Factories* by Kenneth Fish (2013). New editions of the first two books have been released and are worth re-examining, as they are foundational texts of eco-Marxism. While Schmidt's and Burkett's works are both studies of the dialectic of nature, they differ on the question of whether Karl Marx harboured ecological sympathies. Fish suggests transgenic animals are the logical telos of industrialisation, while Malm shows that capitalism has long used fossil fuels as weapons of class struggle. All four scholars stress that Marx was thoroughly interested in capitalism as a natural system. One of the central ideas linking the four books is a process Marx called the 'humanisation of nature'.

Keywords

environment – dialectical materialism – Karl Marx – industrial revolution – genetically-modified organisms – energy – coal – nature – eco-Marxism

Alfred Schmidt, (2014) *The Concept of Nature in Marx*, translated by Ben Fowkes, London: Verso,

Paul Burkett, (2015) *Marx and Nature: A Red and Green Perspective*, Chicago: Haymarket Books,

Andreas Malm, (2016) *Fossil Capital: The Rise of Steam-Power and the Roots of Global Warming*, London: Verso,

Kenneth Fish, (2013) *Living Factories: Biotechnology and the Unique Nature of Capitalism*, Montreal: McGill-Queen's University Press.

In 2014 *Jacobin* dedicated an issue to the reinvigoration of eco-Marxism because, as Alyssa Battistoni writes, the environment has remained 'undertheorised and too rarely discussed' by the Left.^[1] This is not merely an academic lacuna, but an urgent debate with real-world consequences. 'What use is playing the long game', she asks, 'when the arc of the universe feels so frighteningly short?' Carbon emissions have to peak in a matter of years and thereafter quickly decline to nil by 2040 if there is to be any chance of containing climate change to a mere two degrees of warming, which itself is an arbitrary target.^[2] Global warming is not the only threat: the global expanse of coral reefs have already declined by half due to oceanic acidification and agricultural nitrogen pollution; the ocean has been trawled to near lifelessness; and the 'Sixth Extinction' that could extinguish half of the world's flora and fauna species by this century's end is proceeding apace due to high rates of deforestation.^[3] In the years since Battistoni penned her critique, however, new eco-Marxist works and republished classics have appeared, hinting that eco-Marxism has finally arrived

as a coherent sub-field able to influence environmental debates and activism more broadly.

It was not obvious in the mid-twentieth century that environmental issues were going to be so neglected by the Left. The concurrent publication in 1944 of Karl Polanyi's *The Great Transformation* and Max Horkheimer and Theodor Adorno's *Dialectic of Enlightenment* seemed to herald the centrality of nature within critiques of capitalism. Polanyi argued that, like the two other 'fictitious commodities' labour and money, land would be destroyed once it was forced to conform to the market's logic. Land itself 'is only another name for nature, which is not produced by man'.^[4] Society could only avoid the destruction of these three fundamental social components by organising a 'countermovement' against the power of the market. In this way, Polanyi presents nature and humanity as two inseparable entities, arguing that the former requires the 'protective covering of cultural institutions' or it will otherwise be 'reduced to its elements, neighbourhoods and landscapes defiled, rivers polluted'.^[5] While his framework was not Marxist, it belonged to a similar tradition of critical political economy and would prove influential for the development of 'eco-socialism' in the 1980s and 1990s. Adorno and Horkheimer similarly warned that eighteenth-century liberalism had set in motion the instrumentalisation of nature that would lead to its destruction, though they focused on the Enlightenment rather than the market. Science had already conquered nature, leaving the world's environment 'radiant with triumphant calamity'.^[6]

Alfred Schmidt continued the work initiated by his Doktorväter Horkheimer and Adorno by writing an exegesis of the Frankfurt School's central leitmotif, nature. The book that resulted from his dissertation, *The Concept of Nature in Marx*, should be seen as the seminal contribution to the canon of eco-Marxism. Published in German in 1962 – the same year as *Silent Spring* – the book was translated into English in 1971 and was republished by Verso in 2014. Schmidt's primary aim was to trace the evolution of Karl Marx's philosophy of nature through a careful reading of his works, especially the *Grundrisse*. Impressively, Schmidt's monograph may have been the first to be predicated on that newly rediscovered text.^[7] To begin, Schmidt detailed both the influences on Marx's understanding of nature and his original contributions to nineteenth-century debates. Marx draws much from G.W.F. Hegel, but Hegel portrayed nature as the 'moment' of 'alienation' (das Moment der Entäußerung) reconciled to humanity through thought. Instead, Marx emphasised that this reconciliation between nature and humanity occurs through material processes of human life and labour. Schmidt showed that Marx considered humans always to be part of nature, even if they happened to be a unique animal that laboured. Yet, labour-power itself was 'only the manifestation of a force of nature'.^[8] Through labour 'man opposes himself to nature as one of her own forces', and 'by acting on the external world and changing it, he at the same time changes his own nature'.^[9] In this way, Marx's analysis bridges conceptual fissures between nature and society.

Like any good student of the Frankfurt School, Schmidt fought on two fronts, against trendy Western European philosophers and the orthodoxy of the Soviet academy. Schmidt's reliance on the *Grundrisse* was 'polemical' because he believed this source to be an antidote to the overuse of the 1844 Paris Manuscripts, then at the height of fashion.^[10] Their study of the Manuscripts amounted to little more than 'unhistorical anthropology' and maudlin readings of 'alienation'.^[11] Schmidt was more interested in historicising Marx's intellectual development, tracing how his early Romantic idealism hardened into an economic-biological materialism. On the eastern front, Schmidt fought against the environmental philosophers in the USSR, who followed the tradition established by Friedrich Engels in *Dialectics of Nature*. Schmidt respectfully but thoroughly criticised Engels for assuming nature to be a timeless thing outside of society revealed through science. This, Schmidt noted, was – ironically enough – a rather undialectical approach! In contrast, Marx argued that natural 'laws' could be understood only in a human context: 'even this "pure" natural science is provided with an aim, as with its material, only through trade and industry, through the sensuous activity of men'.^[12] Or even more directly: 'The concept of a law of nature is unthinkable without men's endeavours to master nature.'^[13]

Despite its acuity, Schmidt's work failed to exert much influence over scholarly debates. In their 1980 review of philosophical debates on nature, Neil Smith and his collaborator Phil O'Keefe observed that Schmidt's work 'is often quoted, but has not been critically appreciated or assessed'.^[14] Even this small toe-hold in green-Left debates would crumble as the decade progressed. Soon, it was assumed by much of the green-Left that Marx did not have anything useful to say about the environment at all. The causes of this collective intellectual shift were perhaps in the very air itself. East Germany's infamous Ostluft or the radioactive plumes that wafted from Pripyat acted as an airborne rebuttal to eco-Marxism. It was representative of the times that when James O'Connor published his influential thesis of the 'second contradiction of capitalism' in 1988, he claimed to feel more affinity for Polanyi's political economy than Marx's.^[15] This shift was evident in many of the articles published in O'Connor's journal, *Capitalism, Nature, Socialism*, which became the intellectual home of the 'eco-socialists' – but notably not 'eco-Marxists'. While it is commendable that Verso has re-printed *The Concept of Nature in Marx*, it is a shame that they did so without adding an introductory essay that could have put Schmidt's contribution into perspective and stressed why he is worth reading again. Even Schmidt's preface to the 1993 German edition could have been helpful, as he explained that he did not consider Marx or Engels beyond the pale as Prometheans, or that the Marxist tradition could not be salvaged and reused to further environmentalist aims.^[16] This might have endeared him to subsequent generations of eco-Marxists, who generally have considered him an intellectual antagonist, such as Paul Burkett.

Apart from Ted Benton's lonely attempt to add 'eco-regulation' to Marx's labour theory of value in 1989 (more on this below), the

concerted effort to revive an eco-Marxist critique did not get underway until the mid-1990s and early 2000s when Paul Burkett and his frequent collaborator John Bellamy Foster published a slew of works that remain influential today. Foster has criticised the eco-socialists for not bothering to ‘systematically explore the radical roots of Marxian theory itself in order to build on its own materialist and naturalist foundations’ and opting instead for ‘ad hoc means of bridging the gap between the red and the green’.^[17] Instead, he has articulated the notion of capitalism’s ‘metabolic rift’ with nature, which would become one of the field’s master-concepts. This idea, mined from Marx’s studies on soil science, would provide some cohesion to eco-Marxism by centring scholarship on capitalism’s tendency to disrupt natural cycles. The concept of the metabolic rift was derived from the historic example of the separation of the city from the countryside, which meant that nutrients were not returned to fields after food was consumed (i.e. night soil is thrown away rather than sent to the countryside), a problem that then was solved by bringing in a previously exogenous stock – guano, for instance – to replenish what had been a self-replenishing flow. This concept has been widely adopted since Foster published Marx’s *Ecology* in 1999, in works such as Hannah Holleman’s *The Dust Bowls of Empire*, and *The Tragedy of the Commodity* by Stefano Longo, Rebecca Clausen and Brett Clark. While Burkett’s intellectual contributions have proven less easily distilled into a handy modular concept, he has proven himself to be just as ambitious as Foster in making Marx relevant to current environmental debates. *Marx and Nature*, re-printed in time for its fifteenth anniversary by Haymarket in 2014, is worth re-examining the better to understand the trajectory of eco-Marxism as the third generation of scholars begins to make its contributions. Foster’s Introduction to the new edition is helpful in tracing the rivalry between the Polanyians and eco-Marxists over the last few decades.

In many ways, *Marx and Nature* brought eco-Marxism back to where it had begun in 1962 with the publication of *The Concept of Nature in Marx* because both books are attempts to re-arrange Marx’s scattered musings on nature into a coherent philosophical system. Like Schmidt, Burkett studied Marx’s dialectic of nature, especially its place within the labour process, to show that Marx had an especially nimble understanding of humanity’s relationship to nature that avoided any stilted nature–human binarity. Even though many of Burkett’s points echo what Schmidt had written a generation earlier, this repetition was necessary to overturn the notion (which had become conventional wisdom by the 1980s) that Marx had nothing to say about nature. Yet, Burkett styles himself as Schmidt’s antagonist rather than as his heir. This is because Schmidt acknowledged Marx’s espousal of the ‘humanisation of nature’ (*Humanisierung der Natur*) with little interest in nature’s intrinsic worth, while Burkett and Foster aimed to recast him as a proto-environmentalist.

The problem is that Burkett entirely sidesteps the conceptual problem of the humanisation of nature, even though Schmidt emphasised that this was a crucial component of Marx’s dialectic of nature. The humanisation of nature is the process by which humanity employs labour as a means to re-direct flows of energy within natural systems to achieve social ends. Or as Marx puts it in *Capital*: ‘man confronts the material of nature as one of her own forces. He sets in motion arms and legs, head and hands, the natural forces of his body, in order to appropriate the material of nature in a form suitable for his own needs. By thus acting through this motion on the nature which is outside him and changing it, he at the same time changes his own nature’.^[18] Labour, Marx argued, is the practice that ‘transforms the in-itself of nature into a for-us’ and thus promises an eventual transcendence beyond the antithesis of humanity and nature.^[19] This concept is a rare example of one that appears in both Marx’s ‘young’ and ‘mature’ phases. Remarkably, Burkett does not mention the concept even once in *Marx and Nature*.^[20] To occlude this troublesome concept, Burkett is forced to break with Schmidt, lambasting him as a ‘Stalinist’.^[21] This desire to have a simple, sanitised Marx ready for use by the environmental Left is conceptually limiting for eco-Marxism. Nor has Burkett or Foster abjured this simplistic position, as one can see in their latest work, *Marx and the Earth* (2016).

Marx considered the humanisation of nature as a process that predates, includes, and would continue after capitalism because labour itself is a transhistorical activity. For him, the only problem with the humanisation of nature under capitalism is that workers are not free and thus the production of commodities is inherently alienating: ‘All our invention and progress seem to result in endowing material forces with intellectual life, and in stultifying human life into a material force’.^[22] Burkett makes the case for a bucolic communist society, but that is not synonymous with a society predicated on ecological awareness. Marx was a typical nineteenth-century German who wanted to turn the world into a garden or a farm, caring little for the plight of other species. Schmidt recalls an anecdote of Marx taunting a nature-lover that the beautiful Bavarian countryside ‘should at last be ploughed up by modern cultivation and modern machines’.^[23] He considered the proposition of nature’s intrinsic worth as ‘childish’.^[24] Schmidt seems closer to the mark than Burkett in sketching how Marx imagined the place of nature within communism. He quotes Marx’s prediction that in a communist society the humanisation of nature would become a force of liberation, because ‘society’s mastery over nature would thereby be freed from the curse of being simultaneously a mastery over men and of thus perpetuating the reign of blind natural history’.^[25] Yet, this ‘blind natural history’ is nature’s intrinsic worth; it is the avoidance of the Sixth Extinction and with it any hope of devising eco-Marxism as a viable endeavour.

Though there were few eco-Marxists during the 1990s and 2000s, in the last decade Burkett and Foster have been joined by more and more young gimlet-eyed scholars. Andreas Malm, an environmental historian at Lund University, works on a broad canvas, for

Fossil Capital is a weighty tome sprawling centuries and disciplines. This massive, complex book is perhaps best encapsulated by Malm's belief in 'searching not for climate in history, but for history in climate', which he explains as an analytical shift: 'Data on factory legislation or free-trade policy should be brought to bear on rainfall and ice, rather than the other way around'.^[26] He wants to understand climate change as an historical problem specific to capitalism by examining that system's origins in eighteenth-century Britain. Both books herald eco-Marxism's new vigour.

Kenneth Fish, another young eco-Marxist, revives Schmid's interest in the humanisation of nature by studying the biotech industry's bizarre transgenic creatures. Fish, a sociologist teaching at the University of Winnipeg, plucked the pearl of an idea that would become his monograph *Living Factories* from the depths of Canadiana – he was inspired by Margaret Atwood. In the early years of his doctorate he had been seeking a case study that would allow him to use Marxism as a battering ram against the intellectual barrier erected between nature and culture. Upon reading *Oryx and Crake* he realised he had found it, for Atwood's 'spider-goats' were real creatures, even if rakunks, wolvogs, bobkittens and pigeons were not. At the turn of the millennium, Nexia Biotechnologies, a Montreal-based firm, spawned Webster and Peter. Thanks to a certain gene plucked from an orb spider these goats lactated spider-silk protein. The US and Canadian militaries found this 'biosteel' useful for armouring soldiers and building-materials. Fish would add other GMO plants and microbes to complete his dissertation's strange menagerie. He was interested in the animals as sites of production – what he called 'living factories' – rather than as objects for consumption, which have been the focus of most studies on GMOs. This shift in focus was encapsulated by the US Department of Agriculture's helpful suggestion to see various transgenic organisms as instances of 'open-air bioreactor farming'.^[27] In other words, relative to their place in economic production the spider-goats have more in common with industrial brewing or sewage treatment plants than with mere goats.

To aid in this distinction, Fish borrows an analytical framework from Ted Benton to differentiate three forms of labour: 1) 'extractive' or 'primary appropriation'; 2) 'eco-regulatory'; and 3) 'transformative'. Benton coined these concepts three decades ago because he believed that forms of nature closer to nature needed to be theorised as distinct from industrial labour. In 'Marxism and Natural Limits', Benton defined extraction, such as mining, as labour retrieving objects 'found' in nature rather than created by a human hand; eco-regulation is employed in agriculture and similar activities, where workers do not change natural properties and systems so much as guide them; and transformational labour, which involves workers rendering a raw material into something radically different from anything found in nature. Because this form of labour is characteristic of industrial and artisanal work, Benton argued, it composes the bulk of Marxist analysis to the detriment of the other two forms of labour.^[28] Incidentally, Burkett was a critic of Benton's essay from which these concepts sprang, which prompted him to write three dense critiques arguing that Marx's labour theory of value did not require the scaffolding proposed by Benton.^[29] Burkett flattered Benton that the spiritedness of his attacks was commensurate to the intellectual stature of his quarry, who had written 'easily the most influential work in the eco-Marxist literature'.^[30]

Fish dusts off Benton's categories and uses them to great effect in *Living Factories*.^[31] After a careful examination of each possible form of labour in Benton's framework, Fish demonstrates how they fall apart in the context of living factories. Unlike Burkett, Fish's purpose is not just to show that Benton's concepts are flawed, but rather to reveal the novelty of living factories in the evolution of capitalism. Fish argues that living factories are partially extractive, for a desired gene is similar to a precious mineral because it is 'found' in nature rather than made and must be retrieved from wherever it is embedded. Placing it into another creature's DNA is transformational to the extent that humans create transgenic life that would never occur naturally, yet even then the transformation is limited, for recombined DNA is not a passive material, but self-assembling and alive, and indeed, these molecules do most of the scientist's work in cutting, pasting, and expressing various genes after they have been inserted. Thereafter, transformational labour is performed by the transgenic creature through its life processes, such as ovulation or lactation. Industrial labour in living factories, then, has become mainly eco-regulatory: the task of workers is to maintain an environment, whether a microbial culture, a barn, or a greenhouse. Living factories represent the 'agriculturisation' of industry.^[32] Counter-intuitively, Fish argues that capitalist development leans towards eco-regulation, upending the assumption that transformative labour is quintessentially capitalist. The purest expression of transformative labour actually lay in pre-industrial manufacture, when workers used hand-tools to turn raw materials into goods. In contrast, industry harnesses the 'forces of nature' to drive production, leaving de-skilled workers to merely regulate the process. 'In its machinery system', Marx wrote in *Capital*, 'modern industry has a productive organism that is purely objective, in which the labourer becomes a mere appendage to an already existing material condition of production'.^[33] What has hitherto been seen as transformative labour suddenly looks like eco-regulation.

The richness of Fish's analysis is more apparent if read alongside Malm's. Like Fish, Malm is convinced that the capitalist epoch only truly began once humans first harnessed the 'forces of nature'. Tapping into non-human energy sources allowed capitalist technologies to emerge for the first time. Malm quotes Marx's characterisation of the machine as 'dead labour' that becomes 'alive' when connected to an energy source – 'a very mysterious thing'.^[34] This industrial-ecological apparatus then oppresses the living worker by embodying her lost skill and dictating the pace of her work. Machines alone do not make industry; how they are

organised and powered is equally important. 'The spinning machine was not really complete', Malm quotes Marx, 'until a large number of such machines, a reunion of such machines, received their motion from water'.^[35] Once a system of machines was attached to water-power there arose 'a mechanical monster whose body fills whole factories and whose daemon power, at first veiled under the slow and measured motions of his giant limbs, at length breaks out into the fast and furious whirl of his countless working organs.' Many Marxist scholars study Marx's colourful language, but they rarely probe beyond the level of the metaphorical into the analytical. Malm argues that this 'steam demonology [...] can hardly be interpreted as anything other than an assimilation of that proletarian idiom'.^[36] Fish, however, integrates Marx's metaphors directly into his framework to reveal the factory as a humanised natural system. Schmidt would not have been surprised by Fish's blurring of distinctions. As one of the first readers of the Grundrisse, he was aware of Marx's prediction that machinery would evolve, reaching 'total automation', leaving workers as an 'overseer and regulator'.^[37] Living factories, Fish contends, serve to clarify that capitalism does not emulate nature, but rather is nature. This humanised nature is harnessed to achieve social purposes, and thus capitalism should be seen as 'the humanisation of nature in the form of fixed capital'.^[38]

Although Fish draws much from Benton, he does not share his abhorrence of the humanisation of nature, a process the latter lambasted as 'quite fantastic species-narcissism'.^[39] This is because the process dissolves the human-nature binary, which is the material form of the intellectual goal held by Fish when he was a postgraduate. In his defence of the humanisation of nature, he contends that it is wrong to say capitalism 'destroys' environments or creates a 'rift' between society and nature, rather capitalism is a natural system.^[40] He even goes as far as to embrace a controversial group of environmentalists known as the 'bright greens', whose ideology is a strange mix of Silicon Valley techno-optimism, Whole Earth Catalog pseudo-grunginess, and 'Third Way' neoliberalism. The bright greens welcome the onset of humanity as a natural force, calling for a 'good Anthropocene' because since 'we are as gods, we might as well get good at it'.^[41] It is surprising to say the least to see an eco-Marxist align himself with a group that puts its faith in gene-banks, eco-finance and geo-engineering. This unsavoury political alliance should make the Left sceptical of the humanisation of nature.

Nonetheless, Fish is right in realising that the concept of the humanisation of nature gives Marxists an opening into the burgeoning debate on the Anthropocene. At times Marx does seem to be a philosopher of the Anthropocene avant la lettre. In *The German Ideology* he and Engels attacked Ludwig Feuerbach for naively believing in a pure nature, rather than realising that nature is a historical artefact: 'Nature, the nature that preceded human history, is not by any means the nature in which Feuerbach lives, it is nature which today no longer exists anywhere (except perhaps on a few Australian coral-islands of recent origin) and which, therefore, does not exist for Feuerbach'.^[42] Furthermore, Marx envisioned the process of the humanisation of nature as one that could eventually be realised. In his view, not only were humans the only animals that laboured, but uniquely they could 'appropriate, at least potentially, the whole of nature', an act that proved the 'universality of man'.^[43]

While Malm does not directly discuss the humanisation of nature, he provides a thorough critique of the notion of the Anthropocene. He is disgusted by this attempt to blame the poor and powerless for the mess that the rich and wasteful alone have created. *Fossil Capital* makes it clear that industrialisation from the very beginning was a process forced upon the majority of the population by a minority of capitalists. Indeed, the working class revolted frequently during the first half of the nineteenth century to fight the broadening and deepening of the factory system. Workers – children, men, and women – protested the mechanisation of production and the degradation of life by unionising, smashing machines, striking, demonstrating and rioting. A point often ignored by neoclassical economic historians is that no-one wanted to work in early factories. Capitalists resorted to forcibly conscripting the poor, the incarcerated, and the forsaken. Abandoned children were forced to toil late into the night without pay. In an early example of businessmen's penchant for euphemisms, these enslaved orphans were re-branded as 'apprentices'. After an industrial workforce was coerced into existence through dispossession, the lower classes' life expectancy fell to levels not seen since the Black Death and the population's average height declined. In no way is 'humanity' – the collective 'we' – responsible for the Anthropocene. Malm suggests the 'Capitalocene' as a more accurate if perhaps less-mellifluous term.

Malm's main interest lies in revealing how class struggle not only shapes but also sets the pace of energy transitions. This problématique leads to incisive theorising, applicable both to current debates and the history of the industrial revolution, for *Fossil Capital* is not a meek monograph. Malm intrepidly intervenes in almost every academic debate in early nineteenth-century British political economy. Why did the industrial revolution happen? Why in Britain? Why during the eighteenth century? Why did it eventually run on coal? He provides persuasive answers through an adept application of a Marxist framework, and in doing so he savages the dominant neoclassical-economic literature. Most scholars had assumed that the main constraint on industrial production was a shortage of forests to make charcoal. There are whole books on a putative 'wood emergency' (Holznot) in the early-modern period.^[44] In this narrative, coal freed an ecological bottleneck, opening the way for continuous economic growth. This makes no sense at all, Malm insists, as charcoal was not used in early factories – they ran overwhelmingly on waterpower. Northern England and Scotland had many small rivers with an even flow, which were perfect for water-wheels. It was the Roman Empire, as Marx noted in *Capital*, that 'handed down the elementary form of all machinery in the shape of the water-wheel'.

Waterpower remained much cheaper than coal, possibly even free if an entrepreneurial landlord owned riparian land. It may seem surprising to a reader in the twenty-first century that nineteenth-century waterwheels maintained their edge in horsepower and cost over steam engines for decades; until the 1870s, Malm estimates. As late as the 1840s the mammoth 'Heracles' water-wheels produced twice as much horsepower as the largest contemporary steam engines. In the 1860s Marx could sit in London and quite reasonably write his chapter on rent using the example of a river providing a water-powered manufacturer with a competitive edge over commercial rivals.

So, why did coal triumph? And why did it triumph in the 1830s when hydropower remained a barely tapped resource in Britain? A preeminent neoclassical economist, Robert Allen, weakly concedes that 'explaining the slow adoption of steam power in the cotton industry is an important problem for the historians of its technology'.^[45] Neither Allen nor his neo-classicist peers can explain how or why it occurred. Malm, however, draws on concepts from Marxist geography: 'abstract' time and space. If 'concrete' time and space are nature's irregular rhythms and unique geography, then abstract time and space erase specificity. Instead of a capitalist depending on a river's flow and rural location, coal allowed production to take place anywhere and at any time. This ability to make place and time abstract trumped hydropower's cheapness, for it aided capitalists' counter-attacks against workers' offensives. Capitalists provoked resistance by imposing the empty homogenous time of capitalism, but even if money never sleeps, people do. Whenever rivers ran low and factories closed, bosses expected workers to return whenever there was sufficient water, demanding cruelly long hours late into the night. This is why the fight for the working day became the first and foremost demand of the young labour movement. Marx heralded the first restrictions on the working day, the 1833 Factory Act, as 'not only a great practical success; it was the victory of a principle; it was the first time that in broad daylight the political economy of the middle class succumbed to the political economy of the working class'.

The transition to coal solved several problems for early capitalism. Factories could be placed in towns, where an industrial reserve army and the state made workers less prone to rebel. Owners who had set up their factories in isolated river valleys could not readily call upon the state to restore order should workers riot. Indeed, that urban workers had become acculturated to labour discipline was widely agreed upon by contemporary capitalists to be an attraction. Malm stresses that capitalists were more interested in the greater control over their labour-force promised by the new coal-powered regime than they were in exploiting water-power, a much cheaper and more powerful source of energy. Once workers began to win real victories, such as legislative limits on the working day, then coal proved its worth. Unlike hydro-powered factories, which could no longer make up shortfalls when rivers ran low by calling workers back to their looms in the middle of the night, steam engines could be set to run at any time and more engines could always be added to increase productivity despite the shorter hours.^[46]

In this way, Malm answers the question at the heart of the book, but then he is quick to apply these hard-won empirical and theoretical insights to an array of historical and current problems, such as another chapter where Malm explores why capitalism is unlikely to transition to renewable energy. This is because solar and wind power would reduce its ability to abstract time and space – production would be tied to when and where energy is available. Without abstract time and space, capital could not outflank truculent workers and could only produce goods according to concrete time – when the sun shines and the wind blows. Besides, there's little money to be made in renewables. While Big Oil has invested considerable sums in green energy since 2000, it has largely abandoned the field. 'From a peak in 2011 to the year 2013', Malm observes, 'global investments in renewable energy fell by 23 percent. In Europe the figure was a stunning 44 percent'.^[47] This is because renewables are constantly becoming cheaper and profit margins are ever slimmer. In contrast, while the price of fossil fuels may now be low, at least their prices tend to follow a cycle of boom and bust, so it is possible to at least sometimes make super-profits. Lastly, fossil fuels allow the decentralisation of decision-making down to the level of individual capitalists, while renewables (and this was true of river-diversion schemes in eighteenth-century Britain) require extensive co-operation among capitalists or even dreaded state intervention and planning. Capitalism is innately ill-disposed to renewable energy and will likely never divorce its true love, fossil fuels. One could add that capitalism's continued humanisation of nature will continue, but powered by ever-dirtier fossil fuels. This reveals Fish's bright green friends to be quite naive.

All four authors, despite their disagreements, have advanced the field of eco-Marxism, inaugurating hopefully its re-establishment at the centre of the Left Hemisphere. Fish asks readers to take the organic metaphors of the factory literally. Malm retraces the steps Marx took in his own research into the relationship between steam, water and capitalism. Burkett and Schmidt show how Marx honed a complex dialectic of nature. Yet, while all of their contributions are welcomed, it is surprising that the eco-Marxist revival did not occur earlier. It is apparent when reading these books that Marx often said it first and best. He wrote frequently and perceptively on nature and energy, and indeed the startling insights of these four scholars seem to fall from the Moor's writings like ripe fruit. Many of their arguments can be found almost word for word in his scribblings from a century and a half ago. Amongst Marx's papers, one can even find a steam engine intricately drawn by his hand. This is not to say that these four scholars have not done considerable intellectual labour – for they have – but this shows that far from being bare, the Marxist tradition is rich in ecological thought and hopefully further works will appear as urgently as they are needed.

Yet, eco-Marxists will have to predicate their analyses on the works of a man who was not at all an environmentalist and indeed was hostile to the notion of nature's intrinsic worth. Eco-Marxists are doing their young small sub-discipline a disservice if they pretend otherwise. It seems that some of the earliest writings in the field were better attuned to this problem than those of later theorists. Benton dismissed Marx's portrayal of liberation as 'emancipating ourselves from dependence upon nature' as 'absurd'.^[48] He later became one of the very few Marxists to write on animal rights, because he considered it self-evident that the Left should see animals as 'proper subjects of direct moral concern'.^[49] Even earlier, Schmidt made the intellectually mature decision to green Marxism even if that clashed with its primogenitor's preferred hue. Indeed, as one would expect of a student of the Frankfurt School, Schmidt studied the abominable process of the humanisation of nature to rid critical theory of such a dangerous attitude towards the environment. That nature is 'also a being in itself', Schmidt counselled, should have led Marxists to 'renounce the ruthless exploitation' of nature.^[50] In search of an alternative greener heritage he suggested Bertolt Brecht as a singularly un-Promethean Marxist. In Brecht's *Stories of Herr Keuner*, the protagonist remarks that he likes trees because 'we city dwellers get dazed by never seeing anything but use-objects [...] so trees, at any rate for me, since I am not a carpenter, have something soothingly independent about them, outside myself, and as a matter of fact I hope that for carpenters too they have something about them which cannot be put to use.'^[51]

References

- Adorno, Theodor and Max Horkheimer 2002 [1944], *Dialectic of Enlightenment: Philosophical Fragments*, edited by Gunzelin Schmid Noerr, translated by Edmund Jephcott, Stanford: Stanford University Press.
- Battistoni, Alyssa 2014, 'Toward Cyborg Socialism', *Jacobin*, 1 September, available at: <<https://jacobinmag.com/2014/01/toward-cyborg-socialism>>.
- Benton, Ted 1989, 'Marxism and Natural Limits: An Ecological Critique and Reconstruction', *New Left Review*, I, 178: 51–88.
- Benton, Ted 1992, 'Ecology, Socialism and the Mastery of Nature: A Reply to Reiner Grundmann', *New Left Review*, I, 194: 55–74.
- Benton, Ted 1993, *Natural Relations: Ecology, Animal Rights and Social Justice*, London: Verso.
- Burkett, Paul 1997, 'Nature in Marx Reconsidered: A Silver Anniversary Assessment of Alfred Schmidt's Concept of Nature in Marx', *Organization & Environment*, 10, 2: 164–83.
- Burkett, Paul 1998a, 'A Critique of Neo-Malthusian Marxism: Society, Nature, and Population', *Historical Materialism*, 2, 1: 118–42.
- Burkett, Paul 1998b, '[Labour, Eco-Regulation, and Value: A Response to Benton's Ecological Critique of Marx](#)', *Historical Materialism*, 3, 1: 119–44.
- Burkett, Paul 2001, 'Marxism and Natural Limits: A Rejoinder', *Historical Materialism*, 8, 1: 333–54.
- Burkett, Paul 2015 [1999], *Marx and Nature: A Red and Green Perspective*, Chicago: Haymarket Books.
- Fish, Kenneth 2013, *Living Factories: Biotechnology and the Unique Nature of Capitalism*, Montreal: McGill-Queen's University Press.
- Foster, John Bellamy 2000, *Marx's Ecology: Materialism and Nature*, New York: Monthly Review Press.
- Foster, John Bellamy 2014, 'Paul Burkett's Marx and Nature Fifteen Years After', *Monthly Review*, 66, 7: 56.
- Foster, John Bellamy and Paul Burkett 2016, *Marx and the Earth: An Anti-Critique*, Historical Materialism Book Series, Leiden: Brill.
- Hamilton, Clive 2015, 'The Theodicy of the "Good Anthropocene"', *Environmental Humanities*, 7, 1: 233–8.
- International Energy Agency 2015, *Energy and Climate Change*, Paris: IEA.
- Kingsworth, Paul 2012, 'The New Environmentalism: Where Men Must Act "As Gods" to Save the Planet', *The Guardian*, 1 August,

Kolbert, Elizabeth 2014, *The Sixth Extinction: An Unnatural History*, New York: Henry Holt & Company.

Malm, Andreas 2013, 'The Origins of Fossil Capital: From Water to Steam in the British Cotton Industry', *Historical Materialism*, 21, 1: 15–68.

Malm, Andreas 2016, *Fossil Capital: The Rise of Steam-Power and the Roots of Global Warming*, London: Verso.

O'Connor, James 1988, 'Capitalism, Nature, Socialism: A Theoretical Introduction', *Capitalism, Nature, Socialism*, 1, 1: 11–38.

Polanyi, Karl 1944, *The Great Transformation: The Political and Economic Origins of Our Times*, New York: Farrar & Rinehart.

Pomeranz, Kenneth 2000, *The Great Divergence: China, Europe, and the Making of the Modern World Economy*, Princeton: Princeton University Press.

Radkau, Joachim 2012 [2007], *Wood: A History*, translated by Patrick Camiller, Cambridge: Polity Press.

Schmidt, Alfred 1993 [1962], *Der Begriff der Natur in der Lehre von Marx*, Hamburg: Europäische Verlagsanstalt.

Schmidt, Alfred 2014 [1971], *The Concept of Nature in Marx*, translated by Ben Fowkes, London: Verso.

Smith, Neil and Phil O'Keefe 1980, 'Geography, Marx and the Concept of Nature', *Antipode*, 12, 2: 30–9.

Wrigley, Edward Anthony 2010, *Energy and the English Industrial Revolution*, Cambridge: Cambridge University Press.

^[1] Battistoni 2014.

^[2] International Energy Agency 2015, p. 13.

^[3] Kolbert 2014.

^[4] Polanyi 1944, p. 72.

^[5] Polanyi 1944, p. 76.

^[6] Adorno and Horkheimer 2002, p. 1.

^[7] Schmidt 2013, p. 9.

^[8] Quoted in Schmidt 2013, p. 16.

^[9] Quoted in Schmidt 2013, p. 16.

^[10] Schmidt 2013, p. 9.

^[11] Schmidt 2013, pp. 9 and 129.

^[12] Quoted in Schmidt 2013, p. 33.

^[13] Schmidt 2013, p. 70.

^[14] Smith and O'Keefe 1980, p. 33.

^[15] O'Connor 1988. See also Foster 2014.

^[16] Schmidt 1993.

^[17] Foster 2014.

^[18] Quoted in Schmidt 2013, p. 76.

^[19] Quoted in Schmidt 2013, p. 76.

^[20] Although Burkett and Foster's recent jointly-authored book, *Marx and the Earth*, dedicates its first chapter to this troublesome concept, it does not fully address all of Schmidt's concerns. Strangely, it attempts to recast the process of the humanisation of nature as being really the problem of Foster's 'metabolic rift', which is more of an intellectual feint than an acknowledgment of the ecological limits of Marx's thought. Foster and Burkett 2016, pp. 61–83.

^[21] Burkett 1997, p. 164.

^[22] Schmidt 2013, epigraph.

^[23] Schmidt 2013, p. 132.

^[24] Ibid.

^[25] Schmidt 2013, p. 13.

^[26] Malm 2016, p. 6.

^[27] Quoted in Fish 2013, p. 80.

^[28] Benton 1989, p. 70.

^[29] Burkett 1998a, Burkett 1998b, Burkett 2001.

^[30] Burkett 2001, p. 333.

^[31] Benton 1989, pp. 66–70.

^[32] Fish 2013, p. 141.

^[33] Quoted in Fish 2013, p. 159.

^[34] Malm 2016, p. 275.

^[35] Ibid.

^[36] Ibid.

^[37] Quoted in Schmidt 2013, p. 147.

^[38] Fish 2013, p. 189.

^[39] Benton 1993, p. 32.

^[40] The concept of the 'metabolic rift' was popularised in Foster 2000.

^[41] Kingsworth 2012. Quoted in Hamilton 2015, pp. 203–5.

^[42] Quoted in Schmidt 2013, p. 33.

^[43] Quoted in Schmidt 2013, p. 80.

[44] See, for instance, Pomeranz 2000, Radkau 2012 and Wrigley 2010.

[45] Malm 2016, p. 57.

[46] Much of Malm's argument was presented in an article for Historical Materialism, Malm 2013.

[47] Malm 2016, p. 371.

[48] Benton 1992, p. 74.

[49] Benton 1992, p. 72.

[50] Schmidt 2013, pp. 154–5.

[51] Quoted in Schmidt 2013, p. 155.

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