

ECOLOGY AT THE POINT OF PRODUCTION: CLIMATE CHANGE AND CLASS STRUGGLE

Matthew T. Huber

Introduction

In the winter of 2015, the United Steelworkers called for the first major strike of over 5,000 employees at eleven refineries across the United States.¹ This was the largest strike in the oil and gas sector since 1980. Their primary demand was not so much about wages or benefits, but rather about workplace safety and, often, environmental safety. As the vice president of the union made clear, “[t]his work stoppage is about onerous overtime; unsafe staffing levels; dangerous conditions the industry continues to ignore; the daily occurrences of fires, emissions, leaks and explosions that threaten local communities without the industry doing much about it.”² The local pollution—not to mention massive carbon emissions—produced by these refineries was seen as a threat to *both* workers and the local environment. *Jacobin* writer and historian Trish Kahle described the strategic significance: “Workers have power if they act collectively. Just as they can stop oil production (30,000 workers have the capacity to halt 64 percent of the nation’s refining capacity), they can halt capitalism’s assault on the planet.”³ The refinery strike lasted for several weeks before a deal was reached. The deal did not “halt capitalism’s assault on the planet,” but it might have reminded industrial workers of the power they have ceased to use over the last several decades.

Kahle draws on the basic Marxist insight that it is workers’ *strategic location* at the point of production which gives them tremendous power to disrupt capital’s profits at the source. By using the power to strike, workers have historically forced major concessions from capital—not only to pay workers more, but also to transform workplace conditions more broadly. Moreover, it is capital’s control at the *point of production* that is the primary cause of the climate crisis. The most obvious form of planet-warming capitalist production is the digging up of fossil fuel and selling it for profit. Richard Heede’s work traces 63 percent of all historical carbon emissions since the industrial revolution to 90 private and state corporations—what

he calls “the carbon majors.”⁴ But the capitalists responsible for climate change are not limited to fossil fuel producers. Vast amounts of industrial capital are dependent on fossil fuel consumption: the most climate-relevant include producers of cement (responsible for seven percent of global carbon emissions), steel, chemicals, and other carbon-intensive products.⁵ According to the US Energy Information Administration, the industrial sector consumes more of the world’s delivered energy than the residential, commercial, and transportation sectors combined.⁶ If we include emissions from electricity consumption, the industrial sector exceeds all other emission sources (including agriculture and land-use change), with 32 percent of global emissions.⁷

Finally, while much of the attention devoted to climate responsibility focuses on consumption—or what are sometimes called “lifestyle emissions”⁸—we should not forget that every time we consume a commodity it is provisioned by *for-profit producers*. In other words, we should not assume that consumption is the sole responsibility of consumers. Yet this assumption is hard-wired into the politics of climate change: we believe that when we get into a car and turn the ignition, the emissions coming out from the tailpipe are ours, and ours alone. In truth, any given emission is not owned by an individual, but is rather a product of a web of social relations that make the moment of combustion possible. It seems reasonable to place the bulk of responsibility for these emissions on the actors who garner monetary profit from their consumption—and not on those who merely use carbon-intensive commodities to reproduce their lives. If an emission is a web of social relations, we must trace those relations back to the guiding logic of capitalism: accumulation and profit.

Many social critics would consider an emphasis on factories and industrial points of production to be hopelessly orthodox, but in the context of climate change and other ecological crises, such industrial sites remain the belly of the beast.⁹ Workers have the power to disrupt these industries at their core through the power of the strike. Yet at least in the U.S., workers have largely ceased to exercise this power. As Jerry Brown told labor organizer and writer Jane McAlevey, “[t]he strike muscle is like any other muscle. You have to keep it in good shape or it will atrophy.”¹⁰ Despite an invigorating year of widespread public sector teacher strikes in 2018—which led the highest level of work stoppages since 1986¹¹—workers overall are still relatively docile, and union membership has continued its long decline, slumping to 10.3 percent overall and a dismal 6.2 percent in the private sector in 2019.¹²

In this article, I argue that ecological Marxism has developed largely during this period of declining working-class power—and that its theories have served to *supplement* rather than *contest* this decline. I base this claim on the fact that the premise of ecological Marxism tends to be that environmental (and thus climate) politics is something distinct from class (i.e., traditional socialist) politics. In general, environmentalism has been constructed as a new social movement while the Left has embraced a strategic turn toward building a “movement of movements” to take on capitalism.¹³ On its face, this is a strange separation. Given the broad definition of “class” as a structural position connected to the material concerns of human survival, one could argue that environmental issues fall squarely within the realm of class politics. Meanwhile, while the eco-Left argues that environmental politics is something completely distinct from class politics, right-wing factions consistently deploy naked class-based arguments against climate and environmental policies. Their arguments are based on the presumption that such policies will harm ordinary working people, cost jobs, and hurt economic competitiveness (even as they advocate policies of deregulation and austerity that enrich and enlarge corporate capital’s power to destroy the environment).¹⁴ Guess who is winning this struggle?

The field of ecological Marxism has proposed several competing revisions to traditional Marxist theory. These include analyses of the “second contradiction,” “metabolic rift,” “world-ecology,” among many others.¹⁵ While useful in certain ways, these revisions testify to ecological Marxism’s acceptance of a problematic premise: the idea that the environment is a non-class issue, and that the working class is a disappearing and increasingly irrelevant social force. I argue that these revisions to traditional Marxist theory, done in the name of “ecology,” serve to *displace* politics from the point of production—the very point where workers have so much strategic power.

This article proceeds in three parts. First, I situate the development of ecological Marxism historically, in the 1970s and 1980s—a period characterized by a capitalist class offensive against the working class. I argue that many Marxists, ecological and otherwise, accepted the view, popular during this period, that the working class was a declining social force and that the Left should organize around the banner of “new social movements,” shifting politics *away* from the point of production. Second, I show how James O’Connor’s theory of the “second contradiction,” which focuses on “external conditions of production,” locates the source of ecological crisis

and politics outside of production itself.¹⁶ By contrast, I argue that we can in fact analyze Marx's first contradiction ecologically by placing a politics of production at its core. Finally, I show how Jason Moore's "world ecology" approach brackets off ecological issues (and potential politics), relegating them to a realm separate from production and exploitation.¹⁷ As a counter, I argue for an *ecological* analysis of exploitation and surplus value.

Severing Environment from Class

Environmental and climate movements are consistently pitted against a class politics focused on jobs and working-class livelihoods. Especially after the crisis of the 1970s, this conflict was reinforced through a pervasive "jobs versus environment" framing, where unions were seen as promoting ecologically destructive jobs. Recall that it was working-class loggers who opposed the protection of the spotted owl in the early 1990s.¹⁸ It was around this time that the bumper sticker "Are you an Environmentalist or do you Work for a Living?" became popular among rural, working-class communities, as Richard White recounts.¹⁹ While some sectors of the working class were no doubt hostile to elite environmentalism, accusations went both ways. For instance, in 1983, the head of Germany's Green Party Rudolph Bahro plainly stated that the "working class" in industrial countries are to blame for environmental problems: "The working class here [in the West] is the richest lower class in the world... I must say that the metropolitan working class is the worst exploiting class in history."²⁰

The most recent iteration of the "jobs versus environment" debate gets to the core of contemporary climate strategy. While many climate activists have organized direct action blockades of pipelines—what Naomi Klein calls "Blockadia"—to combat climate change and protect local ecological resources (like water at the Standing Rock Indian Reservation), labor unions have in some cases come out in support of pipelines, which they say provide good union jobs.²¹ Their rhetoric has had serious policy implications: the presidential administration of Barack Obama granted anti-pipeline struggles some significant victories only to have Donald Trump's administration reverse them in the name of promoting good working-class American jobs.²² In a capitalist society where most people lack secure access to a livelihood, and depend on waged work for subsistence, the category of "jobs" takes on the utmost moral importance and can eclipse all other concerns. Since

ecological politics often focuses on limiting or stopping certain forms of production—in the case of pipelines, the transportation and distribution of fossil fuels—tension inevitably arises when the productive activities being stopped also employ people.

The jobs versus environment framing ultimately naturalizes the claim that environmental politics is necessarily different and separate from class politics. Environmentalism is often seen as a new social movement that emerged in the 1960s along with feminist, queer, and civil rights movements, which differentiated themselves from a socialist-labor Left rooted in white, male, blue-collar industries.²³ Ecological Marxism emerged to account for this new environmental politics, which saw itself as a challenge to traditional class politics. As André Gorz wrote in 1980, “the ecological struggle... cannot be subordinated to the political objectives of socialism.”²⁴

Gorz’s conviction that the politics of ecology is fundamentally different from a traditional socialist working-class politics helped to develop the field of ecological Marxism in the 1980s and 1990s. Early contributors to this field include Raymond Williams, Murray Bookchin, and Hans Magnus Enzensberger.²⁵ Their focus tended to be on revising basic Marxist principles—a project summed up in an influential 1996 collection edited by Ted Benton, *The Greening of Marxism*.²⁶ Benton observes that “there are many sites of tension between [Green] perspectives and styles of activity and those of the class-based ‘traditional’ Left.”²⁷ Most importantly, ecological Marxists tend to argue that ecology is not a struggle at the point of production, but is rather a politics oriented toward the *effects* of production on external environments and communities. Benton explains that environmentalism often concerns itself with the “unintended consequences of labor [i.e. production] process[es]” and that

these have highly differentiated impacts on the quality of life for different categories of social actors. The political significance of this in terms of the patterning of conflict along lines of cleavage related to gender, residential location, occupational situation, life-style and so on needs to be understood, and integrated with the more traditional focus on lines of class cleavage arising ‘at the point of production.’²⁸

According to this version of environmentalist analysis, the ecological crisis of capitalism is not internal to capitalist production, but is instead defined

by what production does to ecological conditions outside of production. Even today, cutting-edge theories of the ecology of capital insist that we must *not* look at production—the site of traditional class politics. For instance, Nancy Fraser reminds us that both feminist and ecological Marxism must look “behind Marx’s hidden abode” to the unpaid processes of ecology and household work that underpin capitalism.²⁹

Another influential form of ecological Marxism comes from the “metabolic rift” school—developed by John Bellamy Foster, Brett Clark, Richard York, and others—which holds that Marx developed a specific theory of ecological degradation under capitalism.³⁰ Foster and others do not suggest that Marxism needs to be “greened;” rather, they dig into Marx’s writings to argue that Marx was ecological all along.³¹ While the metabolic rift theory shows how capital accumulation necessarily produces ecological crisis (by creating antagonisms between producers and nature, among other things), even the metabolic rift school supposes that Marx’s ecology must be found *outside* traditional Marxist analyses of class and capital-labor struggle—deep in his notebooks on soil science and Justus von Liebig. Yet as I will argue below, one can also *re-read* traditional Marxist concepts through the lens of ecology.

By the 1970s, many radical socialists, Gorz among them, were saying “[f]arwell to the Working-class” as they looked to new social movements to lead the way for a new Left.³² From the 1980s onward, it became a kind of common sense on the Left that capitalism could only be resisted through a movement of movements that integrated labor, peasant, indigenous, environmental, feminist, and other struggles. In many ways, this remains an attractive position. The movement of movements approach is highly inclusive and could, in theory, build a diverse and broad opposition to capital (by contrast, the traditional socialist-labor Left was heavily male and white). The problem, however, is that the period since the 1960s has witnessed a massive shift in power toward the capitalist class—a process we call neoliberalism.³³ Something about the movement of movements approach does not seem to be working. Moreover, new social movements like feminism and anti-racism have always contained Marxist elements committed to class struggle and socialist transformation. For example, the Black Panther Party was avowedly communist, and the Wages for Housework movement in Italy combined feminist and Marxist class politics.³⁴ Yet when it comes to ecological politics, it

has long been considered common sense that traditional socialist politics is not useful— that socialism has to be revised or greened.

How Many Contradictions?³⁵

In 1988, Marxist theorist James O'Connor attempted to develop a political economic theory that put ecological crisis at the core of capitalist social relations, precisely in an effort to yield a revised, or ecological, Marxism. "In similar ways that traditional Marxism illuminates the practices of the traditional labor movements, ecological Marxism may throw light on the practices of new social movements," O'Connor writes.³⁶ O'Connor's analysis thus takes for granted, and indeed rehearses, the deflationary diagnosis of the immediate post-Fordist period: "the decline of traditional labor and socialist movements" and the "rise of 'new social movements' as agencies of social transformation."³⁷ O'Connor's analysis begins from the premise that an "ecological" theory of crisis would have to revise classical Marxism's account of the basic contradictions of capitalism. For O'Connor, capitalism's first contradiction is between the forces and relations of production. Traditionally, Marxists have argued that as capital develops its productive forces through more social and cooperative forms of labor, these productive forces come into conflict with the relations of production, which are the *private* social relations of property and ownership. This contradiction can lead to an overproduction crisis where, in simple terms, waged workers cannot afford to consume the commodities they produce. For O'Connor, the second contradiction of capitalism is between the forces/relations of production on the one hand, and the *conditions of production* on the other. The conditions of production include three categories. The first category includes the *ecological conditions* of production—or what Marx calls "external physical conditions:" natural processes which are critical to production but not visible in market exchange.³⁸ Akin to what economists call "ecosystem services," such processes include the work of soil microbes, wetland water filtration, and stable climates.³⁹ The conditions of production also include the *personal conditions* of production, or the labor of biological reproduction. In order to return to work each day, workers must reproduce themselves biologically with sufficient food, sleep, and medicine, and they must avoid deadly forms of toxic exposure. Notably, O'Connor suggests

that struggles over this peculiar condition of production (i.e., human bodies) can also be “struggles within production.”⁴⁰ Lastly, the conditions of production include the *communal conditions* of production: the various forms of shared infrastructure on which capitalist production depends (water-sewage treatment, electric grids, roads, etc.).⁴¹

O’Connor argues that conflicts between the forces/relations of production and the conditions of production amount to a “contradiction” because capital both depends on these conditions and tends to undermine them. Drawing from the work of Karl Polanyi, O’Connor argues that capital destroys its conditions of production (which he also calls “fictitious commodities”) because it appropriates them as a “free gift of nature,” or as public goods.⁴² Capital’s tendency to destroy its production conditions can lead to what O’Connor calls an “underproduction crisis,” where the declining availability of essential production conditions increases prices for vital inputs, destroys infrastructure, and worsens the health of the labor force. Insofar as he understands “new social movements” to build struggles in and around these conditions—e.g., neighborhoods, homes, healthcare, landscapes—O’Connor situates environmental politics within a larger theory of capitalist crisis and offers a specifically ecological Marxist theory of “the transition to socialism.”⁴³

This is an elegant theory. Yet in the more than thirty years since its elaboration, movements with enough power to confront capital have largely failed to arise, even as capital continues to degrade the conditions of production with impunity. Since the environmental reforms of the early 1970s, inequality has skyrocketed, and the wealthy have consolidated their political power to deregulate industry and cut environmental protections.⁴⁴ Moreover, underproduction has yet to emerge as a real structural crisis for capital. If anything, capital is finding new ways to *profit* from ecological crises, including the crisis of climate change.⁴⁵

Instead of revising or greening Marx’s analysis of the contradictions of capital, one might understand Marx’s theories of contradiction as already ecological. Such a claim is not a gesture of deference to our deity; rather, it is a way to develop a more convincing theory of socialist transition. Climate change can be seen as an expression of what Marx and Engels identify as the core contradiction of capitalism: a contradiction between the social basis of production and privatized relations of production, which revolve around the system of private property and wealth appropriation. Understanding

this contradiction as “ecological” requires taking an expansive view of what Marx and Engels mean by “social.” The social encompasses not only human relationships, but also the sustaining relationships humans maintain with their non-human environments. Thinking in these terms is a way not only to revise Marxism to add ecological dimensions, but also to think ecologically about Marxism’s core theoretical insights. The upshot is that the political theories and strategies that flow from Marx’s core contradiction apply equally to ecological crisis: namely, class struggle remains central.

To understand Marx and Engels’s historical theories of contradiction, we must revisit the “fettering thesis,” which describes the transition between specific modes of production. Marx and Engels’s historical materialism hinges on the idea that specific historical modes of production develop until their material bases are “fettered” (or limited) by their associated social or class relations. This is summarized in Marx’s preface to *A Contribution to the Critique of Political Economy*:

At a certain stage of development, the material productive forces of society come into conflict with the existing relations of production or... with the property relations within the framework of which they have operated hitherto. From forms of development of the productive forces these relations turn into their fetters. Then begins an era of social revolution.⁴⁶

The fettering thesis reappears in *Capital, Volume I* where Marx observes: “The monopoly of capital becomes a fetter upon the mode of production which has flourished alongside and under it.”⁴⁷ Yet “the monopoly of capital” is not specific enough to illuminate the core contradiction of capitalism, which Engels describes in *Socialism: Utopian and Scientific* as “[t]he contradiction between social production and capitalist appropriation.”⁴⁸ By capitalist appropriation Engels means *private* appropriation.

Marx and Engels understand the peasant and artisanal modes of production characteristic of pre-capitalist societies to be defined by various forms of isolated and private or small-scale communal labor. Capitalism develops more social forms of production based on increasingly complex divisions of labor and knowledge systems, while maintaining a private form of appropriation where money and profit (and wages, for that matter) only flow to privatized market subjects. As more and more communities are violently torn from their own means of production (namely, the land),

capital's deeply interconnected social labor systems provision a growing portion of society's needs. Today, this "socialized" production system has enveloped the entire planet—encompassing everything from global supply chains to automated financial flows of money and information. As Marx argues in *Capital, Volume I*, the socialization of production under capitalism points to "the further socialization of labour and the further transformation of the soil and other means of production into socially exploited and therefore communal means of production."⁴⁹ This is socialism, and ecologically minded thinkers will note that Marx mentions the soil as a site ripe for communal control.

Let me go deeper into what Marx means by "social." Put simply, Marx means relations between people, or forms of interdependence. On the one hand, Marx's analysis of the commodity reveals that all those engaged in commodity exchange stand in relation to "the total labour of society," insofar as all commodities must be commensurable and exchangeable with all forms of labor.⁵⁰ On the other hand, Marx shows that, over time, the labor process itself becomes more intensely social and based on a "collective worker."⁵¹ Yet as Andreas Malm demonstrates, Marx's examination of large-scale industry shows that capital can not only require living labor to become more cooperative, but can also replace the living, "muscular" power of human labor with fossil fuel-powered machines (in the context of nineteenth-century England, this meant coal-based steam power).⁵² This, too, is a process of socialization. The energy transition Malm describes was social not only because it made factory workers more cooperative, but also because it directly integrated complex and social systems of knowledge (e.g., engineering, thermodynamics, chemistry) into production. As Marx writes in the *Grundrisse*, the socialization of production via technological development leads to a situation in which "the accumulation of knowledge and of skill, of the general productive forces of the social brain, is thus absorbed into capital, as opposed to labour, and hence appears as an attribute of capital."⁵³ The result is that, under capitalism, all socialized innovation and progress appears to flow from private captains of industry, like Steve Jobs and Elon Musk, when they are in fact more collective affairs.

Capital's tendency to socialize the production process makes capitalist production reliant on fossil fuel-powered machinery. Such reliance is one reason that capitalism, more than previous production regimes, has proven to be such an ecologically consequential mode of production. Machine-

based production is thus social not only because it appropriates the “social brain” of science, but also because capitalist machinery—from the early steam-powered factory to the modern data servers powered by coal-fired electricity—generates waste products that have enduring social effects (as well as lasting effects on all life). A coal-burning steel plant outside Pittsburgh, or in China’s Hebei province, deteriorates the air quality for local residents (everyone who breathes in dirty air stands in social relation to the steel plant) and destabilizes the climate by spewing carbon dioxide into the atmosphere. Viewed in terms of both its local and global effects, fossil capitalism is a social form of production because its production regimes are always intertwined with the lives of those who bear the costs of capitalist pollution. While not the first global production system, fossil capitalism is a thoroughly planetary form of production: capitalist activity in any one location generates uneven effects for everyone on the planet.⁵⁴

I have tried to show that capitalism is an increasingly social system of production. Yet this socialized form of production maintains private forms of appropriation, resulting in an internal contradiction. Is not climate change evidence of such a contradiction? Today, private fossil fuel companies dig up fossil fuel, sell it as a commodity, and monopolize the profits—creating enclaves of wealth and luxury for their CEOs and other corporate leaders—while the social effects of their operations are making the planet uninhabitable for many.

In Marx’s time private control of gigantic global capitalist empires, coupled with mass poverty and immiseration, made the expropriation of capital seem like a logical next step for the revolutionary working classes. Today, gigantic global capitalist empires not only coexist with, but also very clearly accelerate, immiseration and planetary collapse. Just 100 companies are responsible for 71 percent of greenhouse gas emissions since 1988.⁵⁵ The climate crisis is leading climate scientists like Kevin Anderson to state quite plainly that nothing short of a “complete revolution in our energy system” will save us from planetary ruin.⁵⁶ Capitalism’s contradictions are clearly heightened: capital is expropriating not only the atmospheric commons, but also our common future. If humanity is to survive, an “era of social revolution” is necessary: to use Marx’s phrase, the planetary crisis of ecology makes “expropriating the expropriators” appear not only necessary, but obvious.⁵⁷ For Marx, expropriating the expropriators only makes sense if it is done by the “mass of the people”

(i.e., the working class).⁵⁸ For this reason, rather than propose a revised “second contradiction” to accommodate a theory of socialist transition grounded in “new social movements,” we might consider returning to an ecological theory of socialist transition based on working-class power and mass expropriation. Rather than “greening Marxism,” in other words, we might revisit the classical principles of Marx and Engels’s historical materialism. Doing so is not merely a theoretical exercise, but is instead politically significant. Climate change is only the most recent example, amid overwhelming evidence, that capital’s socialized forms of production contradict its privatized forms of appropriation.

What Produces “Cheap Nature”? Ecologies of Surplus Value

Another new and influential approach to ecological Marxism is Jason Moore’s “world-ecology” analysis.⁵⁹ Moore critiques much of ecological Marxism for reproducing what he calls a Cartesian dualism between nature and society—specifically, for positing a social system called “capitalism” that destroys a separate realm called the “environment.” For Moore, such attempts at ecological political economy decry the ecological consequences of capitalism without understanding the ecology of capitalism itself. As Moore puts it, “capitalism does not *have* an ecological regime; it *is* an ecological regime.”⁶⁰ I agree strongly with Moore that we must theorize ecology as internal to capital, rather than as a set of external conditions. But does Moore accomplish such a theorization? If capitalism *is* an ecological regime, what kind of ecological regime is it? Moore’s key category is “cheap nature.”⁶¹ For Moore, capital accumulation depends on a set of “cheap” inputs, including food, energy, raw materials, and labor.⁶² What makes these inputs cheap, Moore argues, is the “unpaid work/energy” of nature itself.⁶³ By this Moore means the actual unmonetized work of nature—the work of soil microbes, wetland filtration, and carbon sequestration—or what economists awkwardly term “ecosystem services.”⁶⁴

Does this sound familiar? It should. Moore’s “cheap nature” describes essentially the same processes as O’Connor’s “external conditions of production.”⁶⁵ Key to Moore’s framework is the claim that these work processes are “unpaid”—i.e., they are external to the value-form under capital—and that capital *relies* on this work remaining unpaid. Moore sums up his argument in a pithy phrase: “Value does not work unless most *work* is not valued.”⁶⁶ In elaborating his argument, Moore attempts to account for the manifold

forms of unpaid work that structure capitalism as a whole, from unpaid childcare in the home to slave labor underpinning the plantation economy. Moore collapses—problematically, in my view—these various form of unpaid work into an integrative history of capitalism in which accumulation turns on the plunder of “women, nature, and colonies” (a triad he borrows from ecofeminist Maria Mies).⁶⁷ It is their unpaid work that allows commodities to remain cheap. When it comes to “nature,” capital stalks the planet looking for new frontiers of freshly exploitable resources, like forests or mineral deposits. Indeed, it is such “frontier” regions, Moore argues, that contain key reservoirs of unpaid work.⁶⁸

The manifold forms of unpaid work Moore identifies are certainly critical to the history of capitalism. Yet is unpaid work the only basis for understanding the ecology of capital? Particularly the production of *cheap nature*? In isolating ecology to processes of unpaid work in nature, Moore identifies a dualism of his own between what he calls “the dialectic of paid and unpaid work.”⁶⁹ Moore maps this dualism onto the distinction between production and reproduction, or “the exploitation of labor power and the appropriation of unpaid work.”⁷⁰ Moore’s dualism thus distinguishes between surplus value extraction in the realm of production and the unpaid work of nature in the realm of reproduction. Moore presents his dualism quite clearly: “I take paid work (capitalization) to be the domain of the capital-labor conflict over shares of value. This is the question of exploitation. I take unpaid work to be a struggle over the forms and relations of capital to unmonetized social reproduction (e.g., domestic labor) and to the ‘work of nature.’”⁷¹

Moore’s dualism creates the sense not only that production and exploitation are somehow *not* ecological, but also that struggles over “capital-labor” relations in production are separate from environmental forms of struggle. As with O’Connor’s work, Moore’s analysis leads to the conclusion that environmental struggles are not production struggles. Yet if the driving force of capital is surplus value (recall that the analysis of surplus value is Marx’s signature contribution in *Capital*) one would expect an ecological theory of capitalism to center on questions of exploitation and surplus value production. More to the point, what Marx refers to as the “paid work” of human labor power is itself of course *also unpaid work*.⁷² Marx’s entire theory of surplus value hinges on the unpaid labor freely appropriated by the capitalist. There is no “capitalization” without this unpaid work.

According to Marx, the primary way commodities are cheapened under “the specifically capitalist mode of production” is through the generation of *relative surplus value, which involves changes at the point of production*, rather than outside production in the sphere of “unpaid work/energy.”⁷³ Individual capitalists can produce gains in relative surplus value by increasing labor productivity—for instance, by increasing labor intensity, developing a more sophisticated division of labor, or accelerating the use of labor-saving machinery (i.e., automation), a prominent means of profit-making in Marx’s time (and in ours).⁷⁴ Marx showed that capitalists who make such investments can generate brief surplus profits by selling their commodities below the social value and thereby capturing more of the market. Doing so forces other capitalists to adopt labor-saving technologies, and therefore reduces the overall value generated by capitalist production. We might call this depreciation of value the cheapening of commodities which, according to Marx, confirms capital’s “immanent drive, and a constant tendency, towards increasing the productivity of labour, in order to cheapen commodities and, by cheapening commodities, to cheapen the worker himself.”⁷⁵

For Marx, however, the temporary surplus profits flowing to *individually* innovative capitalists is not the key to understanding the importance of relative surplus value to capital accumulation. The tendency of individual capitalists to seek to improve labor productivity creates new horizons of surplus value production for capital as a whole. Marx explained it thusly: “With the increase in the productivity of labour, the value of labour-power will fall, and the portion of the working day necessary for the reproduction of that value will be shortened.”⁷⁶ Cheapening individual commodities leads to the cheapening of those commodities needed to reproduce workers. For example, massive gains in industrial productivity over the last century have yielded a cheap food system. This system produces low-cost food for workers, and yet these cheaply processed and not particularly nutritious foods also *cheapen* the lives of the workers themselves.⁷⁷

Marx referred to the collection of commodities needed to reproduce the worker as the “value of labor power.”⁷⁸ As capital drives down the value of labor power, it expands what can be appropriated as surplus value. Politically, this means that capitalists as a class have an interest in cheapening wage (or consumption) goods (although capitalists who provision those goods can have the opposite interest). For example, in Marx’s time, the bourgeoisie was in favor of repealing the Corn Laws, which protected

British landed interests and rents through higher commodity prices, because free trade and increased food imports would allow capitalists to pay their workers lower wages.⁷⁹ This dynamic also creates a deeper, cultural problem where workers understand their interests and livelihoods to depend on access to cheap commodities.

Is there an ecology of relative surplus value? Insofar as workers are living, biological animals, the value of labor power includes commodities directly drawn from nature. It is capital's drive for relative surplus value that produces massive gains in labor productivity in the extraction of these raw materials, which include food, energy, and fiber for clothing. One basic economic consequence is this: the *cheaper* food, energy, clothing and other necessities are, the more other kinds of biologically inessential commodities can become part of the standard set of commodities necessary for social reproduction (e.g., smartphones in the Global North). In other words, cheapening leads to more consumption, and therefore to more ecological harms.⁸⁰

The most important method of improving labor productivity is the employment of machinery (consider the role of tractors in cheapening food production, for instance). Since the nineteenth century, the employment of machinery has involved a source of non-human energy, usually fossil fuel, creating forms of "fossil capital" whose accumulation depends on carbon emissions.⁸¹ As labor activist and scholar Paul Hampton puts it, "the process of replacing living labour with machinery—the product of other, past labour—required an enormous expansion of energy to power such labour processes."⁸² Capital's tendency to replace living labor with fossil-fueled machines situates capital and its control over production at the heart of the climate crisis. Moreover, just as capital seeks to develop the most efficient and mechanized methods of extracting raw materials from nature, it also seeks to displace ecological destruction onto the environment in the form of waste and pollution. The process of increasing relative surplus value creates *cheap commodities*, but as many environmental economists point out, it does so in ways that create significant costs, or externalities, for larger ecological systems. The key is to root these "external" consequences in a politics focused on their source, in the "hidden abode" of production.

Does an ecological analysis of capitalist production, routed through an account of relative surplus value, invalidate Moore's claims about the source of cheap natures under capitalism? Not exactly. There are no doubt occasions when capitalists are able to profit immensely from untapped

“frontiers” of cheap nature, i.e., the unpaid work/energy of ecological systems. Yet taking capitalist social relations as a totality, one could argue that most commodities are cheap due to processes of relative surplus value production. Further, Moore fails to acknowledge that Marx already developed a theory of how the “work” of nature is appropriated—the theory of rent.⁸³ Marx’s theory of rent is complex, but it suffices to say that he borrowed David Ricardo’s theory of differential rent (what Marx calls “Differential Rent I”) to explain how landlords appropriate surplus profits flowing from more fertile soil or other natural variations in the quality of the land.⁸⁴ Marx suggests that the value of corn, oil, or any commodity coming from the land is set by the socially necessary labor time it takes to produce that commodity on the *least fertile* land currently under production. Landlords producing on more fertile lands enjoy extra profits because they have lower costs of production, and they appropriate these surplus profits as rent. In other words, if the fertility or productivity of soil (or any resource base) can be attributed to “extra” work provided by nature, this work is generally paid (however incompletely) as rent to landlords. These fertile reservoirs of nature coincide with Moore’s notion of untapped commodity frontiers. Yet at least portions of nature’s “unpaid work” are in fact paid, albeit to landlords, and deducted from the surplus value ultimately generated through production and exploitation.

As Marx explains, landlords’ ability to appropriate rent derives from their peculiar power: the “modern form of landed property presupposes the monopoly of disposing of particular portions of the globe as exclusive spheres of their private will to the exclusion of all others.”⁸⁵ Often the monopoly power of landed property resides with the state itself (in most countries the state is the landlord or owner of *all* the subsurface minerals in a given territory).⁸⁶ If the work of nature is often siphoned off by parasitical landlords, their doing so does not serve to *cheapen* natural resources in the slightest. Indeed, the power of landed property to extract rents prevents what are in fact *cheap to produce* resources from becoming cheap commodities. Ultimately, since Moore’s theory ignores landed property and rent, he situates his argument in a dialectic of value and non-value that occludes the real class relations shaping nature-society relations under capitalism.

According to Marx, the main force driving the *cheapening* of all commodities (not just natural resources) is neither nature nor rentiers, but capital and the drive to produce surplus value. My contention is that looking at the hidden abode of surplus value production reveals dramatic ecological

consequences (the climate crisis being only the tip of the iceberg). In other words, just as Marx uncovers hidden labor exploitation in surplus value, we can also uncover hidden forms of ecological degradation internal to the production process.

Conclusion

Neoliberalism has been a long 40-year period during which much of the Left was convinced that class and socialist politics were outmoded and that a new Left would be built through a “movement of movements.” Yet class struggle did not fade away. As Warren Buffet so famously put it, “there’s class warfare, all right... but it’s my class, the rich class, that’s making war, and we’re winning.”⁸⁷ If the Left wants to win again, it might be time to try historically proven strategies that center around uniting the working class to attack capital’s power at the point of production. It is capital’s power at the point of production that is largely the cause of climate change. To confront it, we need theories of ecological Marxism that not only focus on the external conditions of production and the unpaid work of nature, but which also seek to understand how our ecological crisis stems from the core driving force of capital: the imperative to exploit workers and produce surplus value. It is the power of a small minority of private owners to appropriate surplus value while the world burns that represents the primary contradiction of the twenty-first century. The era of social revolution better come quick.

NOTES

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- 4 Richard Heede, “Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010,” *Climatic Change* 122, no. 1–2 (2014): 229–241.
- 5 Chelsea Harvey, “Cement Producers Are Developing a Plan to Reduce CO₂ Emissions,” *E&E News*, July 9, 2018, <https://www.scientificamerican.com/article/cement-producers-are-developing-a-plan-to-reduce-co2-emissions/>.

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- 8 David Roberts, “Wealthier People Produce More Carbon Pollution — Even the ‘Green’ Ones,” *Vox*, December 1, 2017, <https://www.vox.com/energy-and-environment/2017/12/1/16718844/green-consumers-climate-change>.
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- 11 Bureau of Labor Statistics, “Work Stoppages Summary,” February 8, 2019, <https://www.bls.gov/news.release/wkstp.nro.htm>.
- 12 Bureau of Labor Statistics, “Union Members Summary,” January 18, 2019, <https://www.bls.gov/news.release/union2.nro.htm>.
- 13 See James O’Connor, “The Second Contradiction of Capitalism,” *Capitalism, Nature, Socialism* 1 (Fall 1988); Michael Löwy, “Why Ecosocialism: For a Red–Green Future,” *Great Transition Initiative* (December 2018), <https://www.greattransition.org/publication/why-ecosocialism-red-green-future>.
- 14 See Matthew T. Huber, “Pain at the Pump: Gas Prices, Life, and Death under Neoliberalism,” in *Lifeblood: Oil, Freedom and the Forces of Capital* (Minneapolis: University of Minnesota Press, 2013), 129–154.
- 15 James O’Connor, *Natural Causes: Essays in Ecological Marxism* (London: Guildford, 1998), 158–177; Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (London: Verso, 2015); John Bellamy Foster, Brett Clark, and Richard York, *The Ecological Rift: Capitalism’s War on the Earth* (New York: Monthly Review Press, 2010).
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- 17 Moore, *Capitalism in the Web of Life*.
- 18 Richard White, “Are You an Environmentalist or Do You Work for a Living? Work and Nature,” in *Uncommon Ground: Toward Reinventing Nature*, ed. William Cronon (New York: W. W. Norton & Company, 1996), 171–186.
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- 21 Naomi Klein, *This Changes Everything: Capitalism vs. the Climate* (New York: Simon and Schuster, 2014), 293–336.
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- 24 André Gorz, *Ecology as Politics* (Montreal: Black Rose Books, 1980), 20.
- 25 See Hans Magnus Enzensberger, "A Critique of Political Ecology," *New Left Review* 1/84 (March-April 1974): 3-31; Raymond Williams, *Socialism and Ecology* (London: Socialist and Environmental Resources Association, 1982); Murray Bookchin, *The Ecology of Freedom: The Emergence and Dissolution of Hierarchy* (Palo Alto: Cheshire Books, 1982).
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- 28 Ibid., 80.
- 29 Nancy Fraser, "Behind Marx's Hidden Abode," *New Left Review* 86 (March-April 2014): 55-72.
- 30 For a fully fleshed out articulation of this perspective see John Bellamy Foster, Brett Clark, and Richard York, *The Ecological Rift: Capitalism's War on the Earth* (New York: Monthly Review Press, 2010).
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- 32 André Gorz, *Farwell to the Working-class: Essay on Post-industrial Socialism* (London: Pluto, 1982).
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- 34 See Robert Greene III, "The Socialism of the Black Panthers," *Jacobin*, March 15, 2016, <https://www.jacobinmag.com/2016/03/black-panther-party-revolution-fred-hampton/>; and Sarah Jaffe, "The Factory in the Family: The Radical Vision of Wages for Housework," *The Nation*, April 9, 2018, <https://www.thenation.com/article/wages-for-houseworks-radical-vision/>.
- 35 I borrowed this question from one of the earliest critiques of O'Connor's formulation: Michael Lebowitz, "Capitalism: How Many Contradictions?," *Capitalism Nature Socialism* 3, no. 3 (1992): 92-94.
- 36 Ibid.
- 37 O'Connor, *Natural Causes*, 158.
- 38 Ibid., 146.
- 39 Ibid., 161.
- 40 See Robert Costanza, Ralph d'Arge, Rudolph de Groot, et al., "The Value of the World's Ecosystem Services and Natural Capital," *Nature* 387 (1997): 253-260.
- 41 O'Connor, *Natural Causes*.
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- 43 Ibid., 167.
- 44 Judith Layzer, *Open for Business: Conservatives' Opposition to Environmental Regulation* (Cambridge: MIT Press, 2012).
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- 47 Karl Marx, *Capital: A Critique of Political Economy, Volume I*, trans. Ben Fowkes (London: Penguin, 1992), 929.
- 48 Frederick Engels, *Socialism: Utopian and Scientific* (Peking: Foreign Languages Press, 1975), 80.
- 49 Marx, *Capital*, 928.
- 50 Ibid., 929.
- 51 Ibid., 458.
- 52 Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (London: Verso, 2016).
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- 57 Marx, *Capital*, 929.
- 58 Ibid., 930.
- 59 Moore, *Capitalism in the Web of Life*.
- 60 Ibid., 158, emphasis in original.
- 61 A tangential critique of the focus on "cheap:" in an age of austerity and wage stagnation, it is unlikely that a critique of "cheapness" will appeal to the masses of working-class people (who in fact need cheaper access to the basics of existence like food, transport, energy, and more). See Jason W. Moore, "The End of Cheap Nature, or How I Learned to Stop Worrying about 'the' Environment and Love the Crisis of Capitalism," in *Structures of the World Political Economy and the Future of Global Conflict and Cooperation*, eds. Christian Suter and Christopher Chase-Dunn (Berlin: LIT, 2014), 1-31.
- 62 I will leave aside the fact that Moore also co-wrote a more popular book with Raj Patel on "seven" cheaps, adding money, nature, lives, and care. See Jason W. Moore and Raj Patel, *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet* (Berkeley: University of California Press, 2017).
- 63 Moore, *Capitalism in the Web of Life*, 54.
- 64 See Costanza et al., "The Value of the World's Ecosystem Services and Natural Capital."
- 65 Andreas Malm points out that Moore fails to mention his debt to O'Connor in *Capitalism in the Web of Life* (although he had mentioned it previously). See Andreas Malm, *The Progress of This Storm: Nature and Society in a Warming World* (London: Verso, 2018), 190n34.
- 66 Moore, *Capitalism in the Web of Life*, 49, emphasis in original.
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- 73 Ibid.
- 74 Ibid.
- 75 Ibid., 436-437.
- 76 Ibid., 432.
- 77 Julie Guthman, *Weighing In: Obesity, Food Justice, and the Limits of Capitalism* (Berkeley: University of California Press, 2011), 137.
- 78 Marx, *Capital*, 274.
- 79 Ibid., 404.
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- 81 Malm, *Fossil Capital*.
- 82 Paul Hampton, *Workers and Trade Unions for Climate Solidarity: Tackling Climate Change in a Neoliberal World* (London: Routledge, 2015); See also Renfrew Christie, “Why Does Capital Need Energy?” in *Oil and Class Struggle*, ed. Petter Nore and Terisa Turner (London: Zed, 1980), 10-25.
- 83 See Karl Marx, *Capital: A Critique of Political Economy, Volume III* (London: Penguin, 1981), 751-952.
- 84 David Ricardo, “On Rent,” in *On the Principles of Political Economy and Taxation* (London: John Murray Albemarle Street, 1821), 53-75.
- 85 Ibid., 752.
- 86 See Fernando Coronil, *The Magical State: Nature, Money, and Modernity in Venezuela* (Chicago: University of Chicago Press, 1997).
- 87 Ben Stein, “In Class Warfare, Guess Which Class Is Winning,” *New York Times*, November 26, 2006, <https://www.nytimes.com/2006/11/26/business/yourmoney/26every.html>.