

jan jagodzinski
Editor

Interrogating the Anthropocene

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Stuck in the Anthropocene: The Problem
of History, Theory, and Practice in
Jason W. Moore and John Bellamy Foster's
Eco-Marxism

Alexander M. Stoner and Antony Melathopoulos

INTRODUCTION

Understanding history philosophically—as a theory—is not something that has occurred throughout time, but has recent origins, and is associated with a form of society in which change is anticipated and expected. Whereas intellectuals in pre-modern societies understood history in cyclical terms, Enlightenment thinkers helped solidify the conception of modernity as a radically new epoch, distinct from the past, in which history progresses forward into the future (Collinicos 1999, p. 13). The attempt to characterize the last 250 years as the Anthropocene must be recognized as part of this tradition.

A. M. Stoner (✉)
Department of Sociology & Anthropology,
Northern Michigan University, Marquette, USA

A. Melathopoulos
Department of Horticulture, Oregon State University, Corvallis, OH, USA

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We must also recognize how differently history was regarded before the Anthropocene. Rather than an age of humans (i.e., the abrupt ascendancy of humanity over biophysical nature), the conception of the world 250 years ago was the possibility of changing humanity itself. Captured in ideas such as Kant's "unsocial sociability," Rousseau's "perfectibility," and Adam Smith's idea that the pursuit of self-interest paradoxically results in higher levels of cooperation, these thinkers grasped the potential for humanity to be changed through "society." Indeed, the idea of history is bound up with the very concept of "society" (Adorno 1998 [1962]), which, in turn, was regarded as something other than simply a matter of technological advancement (e.g., steam engines), the reduction of material scarcity through material output (e.g., manufacture) and/or the discovery of new energy sources (e.g., coal). For these thinkers, the kind of change that was underway 250 years ago rendered, for example, "private vice" into something qualitatively different from the "war of all against all" (Hobbes 1994 [1668]), which characterized the past. The fact that "private vice" was now connected to "public virtue," was understood as being part of a deeper wholesale shift in what society was about. Consequently, for someone like Adam Smith, the invention of the steam engine was not an independent factor in history, but rather a product of the new ways people began relating to one another. In light of the emergence of a new form of sociality, humanity was obligated to take hold of society, and in turn, transform humanity itself.

As we will endeavor to demonstrate below, the issue of social action and historical transformation is the point that most befuddles Anthropocenarians. While the Anthropocene describes key changes in the relation between humans and their natural environment, this understanding does not lead convincingly beyond the present moment. Unlike the late eighteenth century, insight into history at the beginning of the twenty-first century appears entirely disconnected from human agency. Contemporary scientists have been able to pinpoint changes in earth system processes as a result of human behavior with an increasingly accurate degree of precision. However, although scientific research measures the severity of societally-induced environmental degradation, indicating the increased visibility of such degradation, increased visibility does not necessarily correspond with a greater ability to understand this degradation, let alone directly pursue action that might move toward ameliorating societally-induced environmental degradation. Indeed, throughout

the latter half of the twentieth century societally-induced environmental degradation was compounded in relation to our awareness of these problems. In this chapter, we will refer to this paradox (wherein environmental degradation increases amid the growth of environmental attention and concern) as the *environment-society problematic* (see Stoner and Melathopoulos 2015, pp. 22–23).

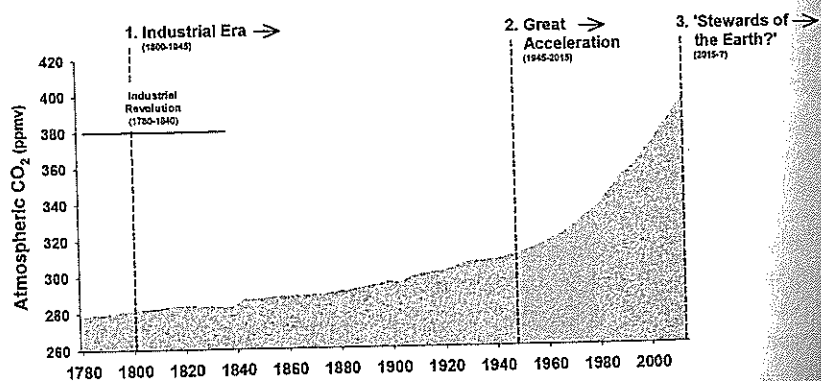
The environment-society problematic, we contend, is not simply a product of fate (e.g., "how humans are"), but rather reflective of a growing gap between the broad awareness of environmental problems, the subjective dimension of societally-induced environmental degradation (Stoner 2014), and our ability to transform the objective dimension of the world in accordance with this awareness (Stoner and Melathopoulos 2015, p. 21). In this sense, the environment-society problematic indexes the ways in which our collective ability to self-consciously transform the socio-biophysical world have grown progressively dim with the advance of modern capitalist society.

We believe that the meaning of human agency in the Anthropocene has grown progressively dim because a key figure is neglected—Karl Marx. Below we will show that while Marx has been raised in an attempt to confront the problems with the Anthropocene (e.g., Foster 2016; Moore 2016), these prominent eco-Marxist critics fall well below the threshold of the Anthropocenarians they criticize. As we will explain, both the Anthropocenarians and eco-Marxist critics have omitted the problem of meaning in history and, in so doing, have elided the linkage of history, theory, and practice. As a result, both Anthropocenarians and eco-Marxist critics advance a profoundly *unhistorical* position (albeit in different ways), further naturalizing the society-environment problematic. We conclude by directing focus toward how the significance of history was understood by both Marx and Marxists who followed him.

CRUTZEN ET AL.

The push to recognize the last 250 years as the Anthropocene has two dimensions, both linked to a recognition of how the last 250 years are unlike the last 10,000 years—the Holocene. On the one hand, the Anthropocene is a matter of objective stratigraphic debate, centered on whether or not the sedimentary patterns of the last 250 years are distinct from the antecedent geological period. Of concern to this chapter is not the Anthropocene in its natural historic sense, but as a distinct period

of human history.¹ The question of the meaning of the Anthropocene in light of human history has been a prominent feature of the work of two key Anthropocene advocates—Nobel Prize winner Paul Crutzen and fellow Earth Systems Scientist Will Steffen (see, e.g., Crutzen and Steffen 2003). Although much of their work describing the destructive scale of biophysical transformation currently underway is motivated by an implicit normative appeal for change in human society, their collaboration with prominent US environmental historian J.R. McNeill attempts to make explicit the historical meaning of our increasingly sophisticated knowledge of biophysical destruction (Steffen et al. 2007). For these three authors, the key transformation separating ancient from modern forms of social organization is the Industrial Revolution of the early nineteenth century (Graph 3.1). Although Steffen et al. give as much historical prominence to the Industrial Revolution as they do to the Neolithic revolution that ushered in civilization 10,000 years ago; they define the substance of both transformations in strictly quantitative terms. Consequently, for these authors the most striking difference between prehistoric and ancient society, and ancient and Industrial society, is their energetic efficiency: “industrial societies as a rule use four or five times as much energy as did agrarian ones, which in turn used three or four times as much as did hunting and gather societies” (616). How humanity found itself in the Anthropocene appears to these authors as a matter of contingency.



Graph 3.1 The level of destruction reflected in the rising levels of atmospheric CO₂

In spite of the accidental manner in which humanity found itself entering the Industrial Revolution, Steffen et al. ultimately advance a theory of history that centers on how we overcome the Anthropocene and become “Stewards of the Earth” after two increasingly ecologically destructive phases: (1) the industrial era (French Revolution–WWII) and (2) Great Acceleration (WWII–present). Steffen et al. claim that the historical conditions for the transformation into the third phase (“Stewards of the Earth” (2015–?)) are not merely contingent, but instead bound up with key developments following WWII—namely, the emergence of environmentalism in the 1960s and the more recent phase of globalization in which they see a reduced “scope for the exercise of arbitrary state power and strengthening... role of civil society” (619). Not only is Steffen et al.’s description of the Anthropocene and its future unconvincing (civil society was arguably a stronger force in society at the beginning of the Anthropocene than it is now), as a theory of history, their account is incoherent. With what necessity would humans living in modern capitalist society self-consciously transition from capitalism into a future form of social organization, representing a historical transformation as profound as the rupture with history that came before it? According to Steffen et al. (2007, p. 619), “humanity is, in one way or another, becoming a self-conscious, active agent in the operation of its own life support system.” However, this statement is more hope than theoretical insight.²

While Crutzen et al. mark a difference from the Industrial Revolution to the Great Acceleration, they characterize this change as an acceleration of what came before, as opposed to a fundamental transformation. However, Crutzen et al. do propose a fundamental, qualitative transformation into humanity’s next phase “Stewards of the Earth.” But how the current stage of history—the Anthropocene—could either accelerate or qualitatively change is seemingly disconnected from properties of society itself. Again, history appears not as a social creation, but as a matter of chance, as something that happens to society. History understood in this manner is the history most consistent with the society-environmental problematic, where growing awareness of environmental degradation does not lead society toward self-conscious transformation so as to rationally address this degradation, but rather the opposite—toward an incapacity to act in ways that are not predetermined from the outset. Crutzen et al. are aware of the gap between theory and practice, and in other fora they acknowledge the tremendous obstacles associated with getting beyond “politically mediated compromises that fall far short”

(Fischer et al. 2007, p. 623). In this sense, the account of history by Crutzen et al. might not be considered wrong, but rather a product of our current moment in which the inability to change society is reflected theoretically in our understanding of history.

The problem with characterizing the past 250 years as the Anthropocene is the extent to which it reflects our adaptation to the present, at the expense of being able to recognize what potential future the present might give rise to. In looking toward the past, Anthropocenarians recognize how thoroughly past and future human-environment relations are intertwined with one another. Anthropocenarians understand the present moment of the Great Acceleration in light of past human-environment dynamics that have run their course, and they struggle for a more sustainable future. In so doing, many Anthropocenarians—in spite of their attempt to understand the relationship between humanity and the natural environment historically—mistakenly presuppose the struggle for a more sustainable future because they fail to adequately confront the existing state of affairs. As a result, these scholars advance a profoundly *unhistorical* position.

ECO-MARXIST CRITICISM

Most critics of the Anthropocene evade its theory of history, preferring instead to attack the concept for being anthropocentric (Chernilo 2016), a function of the managerial quality of Earth System science (Luke 2015) and colonialism (Ahuja 2015; Schulz 2017). Where the critics fall short is in challenging how Crutzen et al.'s historical understanding of the past 250 years might yield theoretical insights into how a further wholesale transformation of humanity could be possible. Even eco-Marxist critics (e.g., Foster 2016; Moore 2016), who operate with an explicit theory of history, ignore the Anthropocene's central question concerning social action and historical transformation. By failing to object to the incoherence of the Anthropocene (as a theory of how change happens historically), eco-Marxist critics tend to either (1) neglect entirely the problem of change (denying that there is anything, in fact, unique about the last 250 years), or (2) confront the problem of change in an entirely superficial manner (e.g., "Marxists" who say the past 250 years was capitalism, and that only a revolution will end it—without being able to articulate, as Lenin did, how the basis of overcoming capitalism would have to be capitalism itself), so that the conditions of such change remain undisturbed.

This section discusses the work of two prominent eco-Marxists—Jason W. Moore and John Bellamy Foster. While both scholars understand the ecological crisis associated with the Great Acceleration as arising from contradictions internal to the capitalist system; they have vastly different ideas about how this system emerged and, relatedly, how we might plausibly move beyond it.

Moore

Jason W. Moore takes issue with the Anthropocene because it fails to account for deep transformations that have taken place in human society over the past five centuries. Moore attempts to locate the root of the problem deeper in history, in the Enlightenment, and with the conceptual separation of humans from nature in Cartesian Dualism. This separation, he asserts, led to the exploitation of both nature and humans in the service of developing capital. Moore takes from these insights the need to reconsider the Anthropocene as the Capitalocene. Below we review Moore's world-historical reconstruction of the Capitalocene, including his reinterpretation of the Great Acceleration. We will argue that Moore's shift in terminology (from the *Anthropocene* to the *Capitalocene*) fails to address the key limitation of the Crutzen et al.—namely, how one is to consider the potential for humanity to effect a qualitative change out of the Anthropocene/Capitolocene. Like Crutzen et al., Moore aspires to a philosophy of history, but can only describe what has happened.

The Capitalocene

According to Moore (2016, p. 84), the Anthropocene cannot adequately engage the big historical questions it poses because it remains conceptually bound to Cartesian dualism—above all, the duality of Nature/Society (according to which nature and humanity are ontologically discrete).³ Not only is the Nature/Society dualism endemic to processes of violence and exploitation central to modern capitalism as a historical project, but according to Moore (2016, p. 79), such duality also obscures the history of the modern world.⁴

Moore has recently attempted to move beyond what he views as the impasse of Cartesian dualism by advancing a "world-ecology" framework.⁵ Central to Moore's framework is the concept of *oikeios*, denoting "the relation through which humans act—and are acted upon by the whole of nature—in our environment-making" (Moore 2015, p. 4). Placing the *oikeios* at the center of his narrative strategy, Moore

reconceptualizes historical change in terms of what he calls the *double-internality*, which he sums up with the catchphrase, “humanity inside nature, nature inside humanity” (Moore 2016, p. 79). Employing the double-internality to specify how capitalism works through nature (and vice versa), Moore advances a world-historical reconstruction not of the *Anthropocene* but of the *Capitalocene*:

My central thesis is that capitalism is historically coherent—if ‘vast but weak’—from the long sixteenth century; co-produced by human and extra-human natures in the web of life; and cohered by a ‘law of value’ that is a ‘law’ of Cheap Nature. At the core of this law is the ongoing, radically expansive, and relentlessly innovative quest to turn the work/energy of the biosphere into capital (value-in-motion). (Moore 2015, p. 14)

Moore (2015, p. 191) stresses that capital’s law of value is not solely economic, for its “accumulation (as abstract labor) is historically materialized through the development of scientific and symbolic regimes necessary to identify, quantify, survey, and otherwise enable not only the advance of commodity production but also the ever-more expansive appropriation of cheap natures.” Accordingly, Moore (2015, p. 191) deemphasizes the historical prominence Crutzen et al. give to the eighteenth century Industrial Revolution, directing focus instead toward antecedent transformations (of land, labor, science, and knowledge) during the so-called “long sixteenth century” that facilitated the “Age of Coal.” In this regard, Moore (2016, pp. 85–86) highlights three interrelated historical processes (ca. 1450–1640) central to the rise of industrialization: (1) primitive accumulation; (2) new forms of territorial power and imperialism; and (3) new ways of knowing and making the world. Moore stresses the *dialectical relation between these three historical processes* as science, the economy, and the state emerge to serve capital accumulation (Moore 2016, p. 86). The key shift proceeding the Industrial Revolution—namely, the inversion of the labor-land relation and the ascendance of labor productivity as a metric of wealth (Moore 2015, p. 189)—cannot be explained *solely* in regards to technical advancements following 1450, but must instead be regarded as unfolding on the basis of “Cheap Natures” made possible by the new technics of global appropriation.⁶

Moore explains that, beginning with the Cartesian revolution and the “age of exploration” in the Atlantic world, knowledge production and

environment-making both produce and are produced by processes of primitive accumulation and imperialism. Historically, relations of appropriation enabled the expanded accumulation of abstract social labor. Revolutions in cartography during the fifteenth century, and more important, the emergence of abstract time throughout the latter half of the fourteenth century are prime examples (cf. Postone 1993). Hence, Moore’s (2016, p. 90) contention that “great ‘economic revolutions,’ propelling labor productivity within the commodity system, are always accompanied by ‘new’ imperialisms, ‘new’ sciences, [and] ‘new’ forms of state power.” Taken together, Moore sees these processes as indicative of capitalism’s law of value as a peculiar way of organizing nature—that is, of “putting the whole of nature to work for capital” (Moore 2016, p. 86). For Moore, cheap labor and cheap nature play a similar role in accounting for historical dynamics.

For Moore, at the heart of capitalism’s law of value is the contradictory dialectic of *exploitation* and *appropriation*. Gleaning insight from Marx, Moore is concerned with how the capacity to do work (by human and extra-human natures) is transformed into value, measured in terms of socially necessary labor time.⁷ However, such relations of exploitation operate properly insofar as their reproduction costs can be held in check (Moore 2015, p. 16). According to Moore (2015, pp. 16–17), labor exploitation is contingent upon “the historical-geographical connections between wage-work and its necessary conditions of expanded reproduction. These conditions depend on massive contributions of unpaid work, outside the commodity system but necessary to its generalization.”

Hence, for Moore, the contradiction at the heart of capitalism’s law of value (between exploitation and appropriation) revolves around the disproportionality between “‘paid work,’ reproduced through the cash nexus, and ‘unpaid work,’ reproduced outside the circuit of capital but indispensable to its expanded reproduction” (Moore 2016, p. 92). Given capitalism’s tendency toward rising labor productivity (which implies accelerating biophysical throughput) the system “must appropriate ever-larger spheres of uncapitalized nature” (Moore 2016, p. 92). Thus, Moore (2015, p. 96) writes, “Great advances in labor productivity, expressing the rising material throughput of an average hour of work, have been possible through great expansions of the ecological surplus.” However, according to Moore (2016, p. 92), “the whole system works (...) because capital pays for only one set of costs, and works strenuously to keep all other costs off the books. Centrally, these are

the costs of reproducing labor-power, food, energy, and raw materials.” While such costs can be externalized in the short-term, Moore (2015, pp. 95–96) notes that “ultimately new sources of work/energy must be found, and appropriated. Thus, every long accumulation cycle unfolds through new commodity frontiers.” For Moore, understanding capitalism as a civilization that, for the first time, “mobilized a metric of wealth premised on labor rather than land productivity” (2016, p. 110) explains much of the early modern landscape transformation—from the appropriation and exhaustion of forests and soil in Brazil, Scandinavia, and Poland in the long seventeenth century; and from the sugar and slave frontiers in the New World, to the expansion of the fossil fuel frontier after the eighteenth century (Moore 2016, p. 110).

The End of the Capitalocene?

According to Moore (2016, p. 93), the Great Acceleration is the result of the law of value, which is “premiered on advancing labor productivity within a very narrow zone: paid work.” For Moore, the slowdown of labor productivity growth since the 1970s and the subsequent growth of global neoliberalism mark the signal crisis of the Capitalocene; that is, the end of the era of Cheap Nature. Moreover, Moore (2016, p. 110) contends that capitalism today has exhausted its Cheap Nature strategy, as the “progressive enclosure of capitalism’s Cheap Nature frontiers” has made it increasingly impossible to appropriate Cheap Nature in the same way.

The central question for Moore is not the beginning of the Anthropocene, but rather the end of the Capitalocene. While for the end of Cheap Nature spells the end of capitalism, according to Moore (2016, p. 114), this does not automatically lead to liberation. Rather, for Moore, adequately addressing our current ecological predicament requires putting the concept of “work” at the center of analysis. Here Moore argues the need to critique the specific ways human and non-human natures are put to work for capitalism. As he explains, “Popular strategies for liberation will succeed or fail on our capacity to forge a different ontology of nature, humanity, and justice—one that asks not merely how to redistribute wealth, but how to remake our place in nature in a way that promises emancipation for all life” (Moore 2016, p. 114). We agree. However, we do not think Moore’s world-ecological reconstruction of the Capitalocene moves us in this direction.

Given Moore’s concern with capitalism’s law of value, it makes sense that he would be drawn to Marx. But while Moore draws from Marx, he does so in a way that raises issues. Moore is certainly correct to point toward the inversion of the labor-land relation, including the ascendance of labor productivity as a metric of wealth, as central to the emergence of value. However, by asserting that the distinction between subject and object (of labor) is a mere cover for expropriation, Moore fails to specify what is qualitatively distinct between traditional society and the Capitalocene. Within Moore’s framework, this transition amounts to nothing other than a more “rational” domination of human and non-human natures and, therefore, a more efficient extraction of the surplus (i.e., an accelerated form of traditional society).

Indeed, the essence of Moore’s argument that cheap labor and cheap nature play a similar role in accounting for historical dynamics is not altogether different from Proudhon (1840 [1890]), who explains history—from ancient to feudal, and then bourgeois society—in terms of the “theft” of “property relations” (according to which property is stolen from small-holding peasants and upwardly redistributed). Here it is worth bearing in mind that Marx devoted significant passages, throughout his various writings, toward a critique of Proudhon. For example, Marx (1865) noted Proudhon’s failure to understand scientific dialectics, and he criticized Proudhon for garbling the categories of political economy “into pre-existing *eternal ideas*,” as opposed to “*the theoretical expression of historical relations of production, corresponding to a particular stage of development in material production*.” For Marx, Proudhon’s critique of property relations was one-sided, considering only their “legal aspect as relations of volition” while omitting their essence as relations of production (ibid.). In much the same way, Moore asserts that the distinction between subject and object is a mere cover for “rational” domination, including a more efficient extraction of the surplus. Is the modern distinction between subject and object entirely negative, as Moore argues, leading one to believe that there is nothing in modernity that is worth redeeming? Here Moore appears to adopt what we take to be an incoherent postmodern position (despite his claims to the contrary). Instead of working through the dialectic of subject and object, Moore attempts to transcend this dialectic, thereby stepping outside of history, in order to create a post-Cartesian ontology.

Moore’s inability to adequately distinguish traditional society and the Capitalocene also means that he is unable to fully grasp the modern

bourgeois articulation of labor. Although Moore identifies capitalism's law of value as a systemic process, he does not fully appreciate the fact that value works through human and non-human natures in different ways. Specifically, Moore fails to recognize abstract social domination, structured by a particular form of labor, as that which distinguishes capital historically. Given the importance of Marx's category of socially necessary labor time to Moore's analysis, this is a crucial omission.

Moore views the capitalist work regime (beginning with the emergence of abstract time and the development of socially necessary labor time as the magnitude of value) as a process of violent abstraction—something that is simply done *to* humans (and non-human natures). Again, according to Moore, the subject-object relation of traditional epistemology is a mere cover for capitalism's violence and exploitation. Marx's critical theory, on the other hand, aims to specify exactly how, through concrete forms of social practice, both subject and object are produced. Marx's theory of practice breaks with the subject-object dualism of traditional epistemology to conceptualize objectivity and subjectivity as mediated through social practice (Postone 1993, p. 217). For Marx, labor constitutes forms of social objectivity and social subjectivity. Praxis, as such, can then be analyzed in terms of structures of social mediation (Postone 1993, pp. 218, 220). Marx was not concerned with labor in general but rather its particular *alienated* form, which under modern capitalism, structures social relations (including the relation between people and nature) (op. cit.). Crucially, alienated labor is a process of *self-generated domination*, constituted by the capitalist production of value, in which individuals do not consciously control but rather are controlled by that which they produce. Within this contradiction, Marx was able to specify immanently and critically the possibility of capital's supersession, giving rise to the possibility of freedom and human agency. Marx's critical theory specifies the twofold task of critique and transformation via immanent critique, which begins by accounting for its immersion in history. But critical theory is not merely descriptive; it also seeks to specify the possibility of qualitative social transformation (Melathopoulos and Stoner 2015). Indeed, the dynamic and contradictory nature of modern capitalist society is what normatively compels and analytically enables Marx to develop tools capable of elucidating critical recognition of the problematic features of modern capitalist society and the related consequences that result from how our lives are created. Moore's approach, on the other hand, dismisses entirely the duality of

subject and object. Consequently, he is unable to confront the issue of domination and its legitimacy.

The categories of Marx's analysis, such as value, labor, and commodity, are reflective of a historically-specific form of social life characterized by internal contradictions (e.g., the opposition between abstract and concrete, general and particular) and, as such denote alienated modes of being comprehended by thought. In contrast, Moore emphasizes the contradiction between "paid work" and "unpaid work" as that which points beyond the Capitalocene. Yet, because Moore does not adequately distinguish traditional society, the Enlightenment, and the Capitalocene, he is unable to fully recognize that, while the opposition between "paid work" and "unpaid work" develops within capitalism, it does not point beyond capitalism. Gleaning insight from Marx, critique must instead be rooted in the double-sided nature of capital's dual social forms, and it must be directed toward the dynamic totality of social relations that he called capital. Unfortunately, Moore's rejection of subject-object dualism forecloses the possibility of such immanent critique. While Moore's Capitalocene alternative offers much historical nuance, like the Anthropocenarians he criticizes, this insight is confined to descriptive history.

Foster

J.B. Foster is one of the most well-known eco-Marxists. Foster (2016, p. 394) explains that the world today is in a period of transition of immense consequence, "represented by the advent of the Anthropocene, coupled with the emergence of what could be called the Age of Ecological Enlightenment." For Foster (2016), the Anthropocene is describing something real, which he likens to a "second Copernican Revolution", fundamentally altering the way in which human beings perceive their relation to the earth" (393). Foster (2016, p. 394) understands the emergence of Anthropocene discourse in relation to the concomitant rise of the global environmental movement. Foster understands the global environmental movement as a positive, progressive force fighting against "bad" capitalists who gain short-term benefit while their actions drive the Great Acceleration (ibid.).

Below we elaborate Foster's position in regards to the Anthropocene, starting with his theory of metabolic rift. We then discuss how Foster understands the Great Acceleration. And finally, we turn to discuss Foster's solution to the problem of freedom embodied in the Anthropocene argument.

The Anthropocene and Metabolic Rift

Perhaps more than any other Marxist thinker in the past two decades, Foster has popularized “Marx’s ecology” and, in so doing, has made significant headway in dispelling the conventional view of Marx as an enemy of nature (see Foster 1999). Foster is most well-known for his concept of metabolic rift (Foster 1999, 2000), which is an attempt to conceptualize nature-society interaction within capitalist society and is rooted in Foster’s interpretation of Marx as a social theorist concerned with the fundamental metabolism between humans and nature. Foster explains the theoretical premise of his approach as follows:

It was in *Capital* that Marx’s materialist conception of nature became fully integrated with his materialist conception of history. In his developed political economy, as presented in *Capital*, Marx employed the concept of ‘metabolism’ (*Stoffwechsel*) to define the labor process as ‘a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature.’ Yet an ‘irreparable rift’ had emerged in this metabolism as a result of capitalist relations of production and the antagonistic separation of town and country. Hence under the society of associated producers it would be necessary to ‘govern the human metabolism with nature in a rational way,’ completely beyond the capabilities of bourgeois society. (Foster 2000, p. 141)

Taking a lead from Marx, Foster places human labor at the center of his analysis of environment-society relations under modern capitalism. Marx understood labor and production in general as the metabolic relation between humanity and nature (see, e.g., Marx 1976 [1867], p. 283). For Marx, production is a social process bound to the “universal metabolism of nature” in which material use values are “appropriated from the ‘natural world’ and transformed by production into social use values to fit ‘human needs’” (quoted in Foster 2013, p. 5). However, with the emergence of capitalism, beginning with the dissolution of landed property, labor becomes alienated from its “prior communal relation to the Earth,” which, under the capitalist mode of production is “historically dissolved’ in its entirety” (Marx, quoted in Foster et al. 2010, p. 283; see also Marx 1973 [1857/58], p. 497). According to Foster (1999, p. 384), the metabolic rift became most acute during the so-called “second agricultural revolution” (ca. 1830–1880), finding expression in both the local (the “antagonistic division between town and country”) and

the global as “whole colonies saw their land, resources, and soil robbed to support the industrialization of the colonizing countries” (cf. Marx 1973 [1857/58], p. 485).

Foster attempts to specify the tension between capitalist production and the natural environment by emphasizing the contradiction between use-value and exchange value.⁸ Interpreting Marx in this way, Foster (2013, p. 2) enumerates the growth imperative of capitalist production:

It is not *use value*, fulfilling concrete, qualitative needs, that constitutes the aim of capitalist production, but rather *exchange value*, generating profit for the capitalist. The abstract, purely quantitative nature of this process, moreover, means that there is no end to the incentive of seeking more money or surplus value, since M' leads in the next circuit of production to a drive to obtain M'' , followed by the drive to obtain M''' in the circuit after that, in an unending sequence of accumulation and expansion. (Foster 2013, p. 2, original emphases)

In other words, the tendency toward rising productivity and ever-greater expansion is contingent upon the increasing exploitation of land and labor, which in capitalism are regarded as “free” gifts of nature. The concept of rift thus illustrates how labor exploitation and environmental degradation are co-determined by the same historical process; namely, capital’s unending quest to accumulate and expand.

The Great Acceleration, Monopoly Capitalism, and Contemporary Environmentalism

More recently, Foster has attempted to update his theory of metabolic rift for the twenty-first century, in order to confront today’s “epochal crisis”—a term Foster uses to name “the convergence of economic and ecological contradictions in such a way that the material conditions of society as a whole are undermined, posing the question of a historical transition to a new mode of production” (2013, pp. 1–2). Specifically, Foster attempts to account for the transition from liberal/competitive to monopoly capitalism, which reaches its full maturity after WWII and, in terms of its ecological impact, is analogous to the Great Acceleration.

Drawing on Baran and Sweezy’s (1966, pp. 131–139) analysis of the “interpenetration effect,” Foster emphasizes the intermixing of sales costs with production costs, which, under monopoly, become virtually indistinguishable. Foster explains that with monopoly capitalism,

the contradiction at the heart of the metabolic rift (between use-value and exchange value) is warped even further “through the displacement of natural-material use value by *specifically capitalist use-value*—the only real ‘use’ of which is to enhance exchange value for the capitalist” (2013, p. 2). In competitive capitalism, only the minimal costs of production, along with the minimal costs of packaging, transportation, and distribution could be recognized as “socially necessary costs of purveying a product to its buyer” (Baran and Sweezy 1966, p. 131). Under these conditions, the product itself “could be legitimately considered an object of utility satisfying a genuine human need” (op. cit., p. 132). Under monopoly capitalism, however, the intermixing of the sales effort with production costs had grown so remarkably that “the use-value structure of the economy could no longer be viewed as a rational expression of production costs” (Foster 2013, p. 6). Gleaning insight from Baran and Sweezy, Foster amends Marx’s M-C-M’ formula to account for the transition from competitive to monopolistic capitalism. With the displacement of natural-material use value by capitalist use value, Foster (2013, p. 2) contends “Marx’s general formula for capital, as it pertains to production itself, has metamorphized into M-C^K-M’” (where C^K=capitalist use values, i.e., wasteful and destructive commodities such as military hardware, massive sales efforts, excessive packaging, as well as the appreciation of financial assets). In other words, as a result of the interpenetration effect, “an ever-larger proportion of what were considered costs of production [are] in fact forms of waste imposed by the system, i.e., specifically capitalist use values (C^K)” (Foster 2013, p. 6).

Monopoly capitalism has developed in a highly uneven fashion, particularly with finance capital’s rise to prominence and the advent of global neoliberalism during the last quarter of the twentieth century. Seeking the lowest unit labor costs worldwide, multinational corporations have shifted the majority of industrial production to export zones in the Global South (Foster 2013, p. 4). Labor and raw materials appropriated from the periphery tend to realize their value in the consumption-based centers of wealthier nations, who in turn export polluting technologies and hazardous waste back to the Global South in a process known as *ecologically unequal exchange* (Frey 2015).⁹

For Foster (2013, p. 8), the epochal crisis is “traceable to the growing distortion, displacement, and degradation of natural-material use values.” While it is impossible to calculate the economic output imputable to that which is exploited and/or wasted, Foster (2013, p. 7) claims

that “the sheer magnitude of such unproductive expenditures” paves the way “for the potential of a more rational, more sustainable society to satisfy real human needs.”¹⁰ Moreover, Foster (2013, p. 9) contends that “the objective forces today are progressively erasing previous distinctions between workplace exploitation and environmental degradation—as capitalism universally undermines all real-material conditions of production.”

Ecological Revolution?

For Foster, the socio-ecological devastation brought about by the Great Acceleration under conditions of monopoly capitalism gives rise to a growing environmental awareness (beginning in the late 1960s and cumulating in the Anthropocene discourse), resulting in the global environmental movement. Foster (2016, p. 394) views the contemporary environmental struggle as an opposition between environmentalists (who pay, or otherwise direct attention toward, the “costs” of production) and capitalists (who gain short-term benefit as their actions drive the Great Acceleration). Unlike Crutzen et al., who respond to the challenge of the Anthropocene by presupposing the existence of the “Stewards of the Earth,” Foster (2016, p. 394) understands this possibility, including what this transition might entail, in relation to capitalism’s converging economic and ecological crisis.

According to Foster (2015), the most recent phase of global neoliberal capitalism has exacerbated the social and ecological tensions which underlying such unequal exchange, giving rise to “a nascent ‘environmental proletariat—a broad mass of working-class humanity who recognize, as a result of the crisis of their own existence, the indissoluble bond between economic and ecological conditions” (Foster 2015). Because the poor are disproportionately impacted by the unpaid costs of capitalist production, Foster insists that a socialist revolution, or what he terms “ecological revolution,” is more likely to take place in the Global South.

According to Foster, the growth of the global environmental movement (e.g., the climate justice movement) is premised upon an emergent “environmental working class” whose members recognize the socially irrational character of capital-induced environmental degradation. Hence, for Foster (2016, p. 394), it is not surprising that the Great Acceleration parallels the rise of the global environmental movement, as the socially irrational nature of capitalist production was recognized by a new generation of Left environmentalists during the 1960s and 1970s.

However, Foster's assumption regarding the deepening of capitalism's internal contradictions, which gives rise to a nascent environmental working class, does not withstand scrutiny.¹¹

Indeed, Foster's position is deeply flawed. Historically, the environmental discontents expressed by contemporary environmentalism failed to engender changes in social structure conducive to moving beyond the societally-induced environmental degradation that characterizes this period. In fact, the exact opposite occurred, as the growth of environmentalism throughout the 1970s and 1980s coincided with the advent of neoliberal global capitalism whose penetration continues to define our current moment. Unfortunately, Foster offers no plausible explanation for the environment-society problematic. Perhaps because of this, Foster continues to predict an impending ecological revolution, but like Crutzen et al., he fails to provide insight into how such a wholesale future transformation might be possible.

In asserting the reality of an emerging environmental working class, Foster ignores the cultural mediations between his ideal-typical model of class attitudes toward the environment and the real consciousness of classes (cf. Feenberg 1979). As Andrew Feenberg (1979) pointed out more than three decades ago in his critical commentary on Barry Commoner, workers' "objective position" in relation to environmental harms does not necessarily lead to their militant anti-capitalist opposition to environmental harms. Moreover, working-class support for Donald J. Trump in the United States draws into relief how weak the connection between environmentalism and labor has grown since Commoner's moment. Today, action on climate change is more liable to be mistaken with a defense of the status quo (and the Democratic Party) than any plausible strategy toward the independent political articulation of workers. While Foster should be cognizant of his own social-historical embeddedness, his insistence on an impending "ecological revolution," premised on an emerging environmental working class, suggests otherwise.

Indeed, how Foster understands the solution to the crisis of the Anthropocene is tightly coupled with how he understands the source of the crisis. As noted above, Foster's ecological critique of capitalism is rooted in the contradiction between exchange value (profit) and use-value (land and labor). As the fungability of the latter is accelerated by capital's endless quest to accumulate, rising labor exploitation and increasing environmental degradation occur apace. Like any good

Marxist, Foster understands the task of critique—that it is not enough to name and confront the current stage of capitalist development; one must also specify the possibilities of moving beyond the present crisis. Unfortunately, Foster's use of Marx's categories forecloses insight into a future beyond capitalism.

Contrary to Foster's theory of metabolic rift, Marx does not root his critique of alienation in the opposition between "first nature" (i.e., the original identity of humanity and nature) and "second nature" (the social metabolic order of capital). Although the conceptualization of an original identity of humanity and nature only applies to pre-bourgeois forms, this conceptualization only becomes possible with the development of bourgeois relations of production, where the original identity of humanity and nature turns into its equally abstract opposite; that is, "the radical divorce of labor from its objective natural conditions" (Schmidt 2014 [1962], p. 82). Marx's position neither confirms the social metabolic order of capital as transhistorical nor denies the existence of a material substratum independent of labor. Rather, Marx treats both conceptualizations of nature as the expression of alienated social relations, which is why the opposition of "first nature" and "second nature" is not an opposition of noncapitalist and capitalist moments. The fact that the original identity of humanity and nature can be, and has been projected backward onto all of human history is itself reflective of capital's specific historical logic—namely, its abstract generality (cf. Postone 1993, pp. 17–18).

Foster's approach is rooted in an uncritical and ahistorical affirmation of "labor" (as the universal metabolic relation between society and nature), which then becomes disrupted in the social metabolic order of capital, giving rise to an irreparable rift. However, in capitalism cause and effect [of alienation] are inverted. We must therefore recognize critically the non-identity of these subjective-objective moments because, although contradictory and even opposed to one another, the subject and the object of labor *appear* unified in social practice (cf. Stoner 2014, p. 633).¹² Marx registers this problem regarding the failure to advance beyond the terms of bourgeois society in his critique of the famous French socialist, Pierre-Joseph Proudhon. For although capital appears to be the result of alienated labor, Marx (1988 [1844], p. 81) contends that alienated labor is the real cause of capital and private property. This is why Marx (81–82), in his polemic against Proudhon, argues: "A *forcing-up of wages* (...) would therefore be nothing but *better payment for*

the slave." If, logically speaking, alienation is more fundamental than private property, then it is conceivably possible to abolish private property but not alienation, so that society therefore becomes "an abstract capitalist" (82). For Marx, the reason to take up Communism is not its one-sided and obvious features, but because it really points beyond the aspects that are obvious to the participants. Foster, by contrast, wants to pit workers vs. capitalists as use-value vs. exchange value, or environmentalists vs. affluent society, or the Global South vs. monopoly. Each time, however, Foster misses Marx's point of being able to advance through surface phenomena critically *and* imminently.

CONCLUSION

Following the emergence of what earlier thinkers termed market (or civil or bourgeois) society, Marx further specified the problem of social transformation under the conditions of the Industrial Revolution during the early nineteenth century. Following Kant, Rousseau and Adam Smith, Marx viewed the significance of capitalism before the Industrial Revolution in terms of the freedom of humanity to transform itself: "the absolute elaboration of [humanity's] creative dispositions, without any preconditions other than antecedent historical evolution which the totality of this evolution—i.e., the evolution of all human powers as such, unmeasured by any previously established yardstick—an end in itself" (Marx 1973 [1857/58], p. 488). But with the Industrial Revolution, Marx registers another shift in which "this complete elaboration of what lies within man, appears as the total alienation, and the destruction of all fixed, one-sided purposes as the sacrifice of the end in itself to a wholly external compulsion" (ibid.).

Marx recognized that the conceptualization of a radical rupture with the past is only possible within the context of bourgeois society, in which the productivity of humanity had fully moved from the rural forms of peasant production to production in cities—and the rise of Third Estate—the class of "commoners" who were to be judged not on the basis of tradition or divine orders but on their capacity to "work". As Marx (1973 [1857/58], p. 109) writes, "World history has not always existed; history as world history is a result." And, in *The German Ideology* Marx and Engels (1845) state: "We know only a single science, the science of history," which, as Marx understood far too well, is a product of bourgeois society. Later, in a letter to JB Schweizer (in which Marx

attacks Proudhon for his superficial knowledge of political economy), Marx (1865) explains that this "new" science can only be derived "from a critical knowledge of the historical movement, a movement which itself produces the *material conditions of emancipation.*"¹³

In developed capitalism, "individuals *seem* independent (...) free to collide with one another and to engage in exchange within this freedom" (Marx 1973 [1857/58], pp. 163–164). But for Marx, such personal independence is illusory, for this relation takes place in a context of objective dependence, in which a significant portion of the population does not consume what they produce, but rather sells their labor as a commodity in order to receive a wage to buy commodities from others.¹⁴ Hence, freedom cannot be actualized within the narrow bourgeois form. While capital appears to serve humanity's end; in actuality, capital is the end to which humanity serves. This contradiction becomes particularly acute after the Industrial Revolution. Following Hegel, Marx understood the categories of political economy, such as commodity, labor, and value as categories of bourgeois society, and he illuminated these categories as self-contradictory. For example, capital renders labor obsolete (thereby generating the conditions of its own supersession) *and* necessary (i.e., a structural precondition for the capitalist production of value) at the same time. It is this dialectic, related to the internal contradictions of the value form of wealth, which Marx grasped, and which remains pertinent today (see Stoner and Melathopoulos 2015).

Marx's emphasis on modes of production allowed him to identify and explain historical transformations. History becoming world history is a historically-specific reflection of bourgeois society. Marx recognized the crisis of bourgeois society in capital in which the tremendous "development of all human powers" is determined by the need to produce surplus value (measured in socially necessary labor time). But capital also points beyond itself insofar as it furnishes the conditions under which the development of man's potentials might become an end in itself. According to Louis Menand (2003), "Marxism was founded on an appeal for social justice, but there were many forms that such an appeal might have taken. Its deeper attraction was the discovery of meaning, a meaning in which human beings might participate, in history itself." Marx is able to advance a praxis adequately attuned to the meaning of capital in history because he was able to reflect upon the present from the perspective of capital pointing beyond itself.

Meaning in history is precisely what the Anthropocene fails to grasp. The Anthropocene says something about history—the history of the present—to be sure, but it does so “one-sidedly” (change comes from factors exogenous to the system). Crutzen et al. (2011), for example, identify “runaway” economic growth as a prominent driver of the Great Acceleration. In doing so, Anthropocene scholars implicitly recognize human activity as increasingly constrained by structures we ourselves create—a conceptualization, which, descriptively, is not too dissimilar from what Marx understood as capital’s abstract domination. Whereas Marx was able to trace such domination, including its possible overcoming, back to existing social relations, the Anthropocene is unable to do so, thereby naturalizing what is historically-specific about the relationship between modern capitalist society and the natural environment. As a result, Anthropocenarians do not recognize that the system’s abstract generality *is its historical specificity*. Beyond measuring biophysical indicators in ice cores, the Anthropocene needs to be recognized as theory on what history is—not as descriptive history, but as a theory of how humanity might fundamentally be transformed.

Without a critical knowledge of history (Marx’s “new” science), it is impossible to understand the environment-society problematic (increasing environmental degradation amid growing environmental attention and concern). The environment-society problematic is not the result of Cartesian dualism (Moore 2016) or capitalist “interests” (Foster 2016). Rather, as environmental degradation is becoming increasingly visible and less deniable, the paradoxical process at work remains largely concealed. Recognition of global ecological problems is not actual (critical) recognition if it is confined to the form of appearance of ecological concern within existing social conditions. Indeed, we should not mistake growing environmental awareness as being other or more than what it is, namely, a product of alienation and reification (see Stoner and Melathopolous 2015). For it is only on the basis of such critical recognition that politics is possible.

In this chapter, we addressed why a philosophy of history has become so difficult and how, in light of this difficulty, practical activity to change things (such as environmentalism) fails to act on history, but rather ends up rationalizing how powerless such activity actually is. This is how activity that might have seemed radical in the 1960s New Left has found itself opposed to change in the present. Activity that does not attend to the growing gulf between theory of change in history and action, paradoxically, becomes a form of historical inertia.

NOTES

1. Both Anthropocenarians as well as their eco-Marxist critics aspire to a philosophy of history. While these scholars may not recognize their endeavors as such, both implicitly attempt to circumscribe the meaning of this history. Below we confront this dimension of the Anthropocene—as a theory of history.
2. In *Freedom in the Anthropocene: Twentieth-Century Helplessness in the Face of Climate Change* (2015), we advance a critical reading of this history through three theorists who span the Great Acceleration. Georg Lukacs and his critique of reification in the wake of the Russian Revolution in 1923, Theodore W. Adorno and his critique of identity thinking in his *Negative Dialectics* after the collapse of revolutionary politics by the 1930s and evaporation of the political tasks of Marxist theory, and lastly Moishe Postone’s critique of traditional Marxism in the wake of the return to Marx by the 1960 New Left (1993).
3. Specifically, Moore is referring to Descartes’ separation of mind and body and, more generally, the era of scientific revolution mostly associated with Descartes. Moore notes three aspects central to the Cartesian dualistic worldview that emerged during this time: (1) the imposition of “an ontological status on entities (substances), as opposed to relationships (that is to say, energy, matter, people, ideas and so on become things)”; (2) the imposition of an either/or logic (rather than both/and); and (3) “the ‘idea of a purposive control over nature through applied science’” (Glacken, quoted in Moore 2015, pp. 19–20). Although the distinction between humanity and the rest of nature predates capitalism, according to Moore, this duality takes on a new meaning in history with the emergence of capitalism. As he notes, “Never before (...) had a civilization organized around a praxis of external nature: a world-praxis in which representations, rationality, and empirical investigation found common cause with capital accumulation in creating Nature as external” (Moore 2015, p. 17).
4. “The story of Humanity and Nature conceals a dirty secret of modern world history. That secret is how capitalism was built on excluding most humans from Humanity—indigenous peoples, enslaves Africans, nearly all women, and even many white-skinned men (Slavs, Jews, the Irish). From the perspective of imperial administrators, merchants, planters, and conquistadores, these humans were not Human at all. They were regarded as part of Nature, along with trees and soils and rivers—and treated accordingly (...) The symbolic, material, and bodily violence of this audacious separation—Humanity and Nature—performed a special kind of ‘work’ for the modern world. Backed by imperial power and capitalist rationality,

- it mobilized unpaid work and energy of humans—especially women, especially the enslaved—in service of transforming landscapes with a singular purpose: the endless accumulation of capital” (Moore 2016, p. 79).
5. Our discussion of Moore’s “world-ecology” is limited to aspects of this approach which we deem relevant to the purposes of the present chapter. Readers are encouraged to see Moore (2015) for a detailed elaboration.
 6. As Moore (2015, p. 17) explains, “So important is the appropriation of unpaid work that the rising rate of exploitation depends upon the fruits of appropriation derived from Cheap Natures, understood primarily as the ‘Four Cheaps’ of labor-power, food, energy, and raw materials.”
 7. To be more precise, value is the objectification of abstract social labor (socially necessary labor time). In Marx, however, there is a distinction between value and its measure, which is necessarily expressed through exchange. Historically, the key transition where the emergence of abstract social labor as a general social phenomenon, is when time expenditure (measured in “independent” abstract temporal units) “is transformed from a result of activity into a normative measure for activity” (Postone 1993, pp. 214–215).
 8. Marx employed the formula $M-C-M'$ (Money-Commodity-Money)—where the difference between M and M' is necessarily only quantitative; that is, “buying in order to sell dearer” (1976 [1867], p. 256)—to capture “the general formula for capital, in the form in which it *appears* directly in the sphere of circulation” (1976 [1867], p. 257, emphasis added).
 9. Here it is worth bearing in mind that the recent explosion of “green” technologies, including the “greening” of many cities in the Global North, is made possible by outsourcing dirty industry elsewhere (Parr 2013, p. 14).
 10. According to Foster (2013, pp. 8–9), “This potential is manifested in the exploitation, waste, idle capacity, displacement of use values, and rapacious destruction of real wealth that characterizes the present system. The gigantic misuse of human and natural resources that constitutes the modern capitalist economy means that we already have the potential several times over to redirect production and consumption to meet human needs and to practice conservation on a global level, creating a society of ecological sustainability and substantive equality.”
 11. The notion that a socialist revolution in advanced capitalism is something that can be entertained as a possibility is highly unlikely in even the most crisis-prone advanced capitalist societies, for the very simple reason that the majority of individuals have identities that would resist the prospect of socialist revolution with all means available. It is implausible that the kind of revolution that would be required, at the necessary scale, could practically occur, not just at present, but either for a long time to come, or at all. There are many reasons for this (e.g., people’s identities, preconceived notions, the power of ideology, the lack of vision and imaginary, the warped mode of the social, the lack of solidarity except in small groups, the prevalence of alienation, the absence of a notion of reconciliation, and the resistance to all constructive efforts by those opposed to them).
 12. As Postone (1993, p. 222) explains: “In capitalism, both moments of people’s relation to nature are a function of labor: the transformation of nature by concrete social labor can, therefore, seem to condition the notions people have of reality, as though the source of meaning is the labor-mediated interaction with nature alone. Consequently, the undifferentiated notion of ‘labor’ can be taken to be the principle of constitution, and knowledge of natural reality can be presumed to develop as a direct function of the degree to which humans dominate nature.”
 13. Significantly, Marx continues in this letter to explain that, while Proudhon recognizes that “every economic relation has a good and a bad side (...) he sees the good side expounded by the economists; the bad side denounced by the socialists. He borrows from the economists the necessity of eternal relations; he borrows from the socialists the illusion of seeing in poverty nothing but poverty (instead of seeing in it the *revolutionary and destructive aspect which will overthrow the old society*)” [emphases added].
 14. “These objective dependency relations also appear, in antithesis to those of *personal* dependence (the objective dependency relation is nothing more than social relations which have become independent and now enter into opposition to the seemingly independent individuals; i.e. the reciprocal relations of production separated from and autonomous of individuals) in such a way that individuals are now ruled by *abstractions*, whereas earlier they depended on one another” (Marx 1973 [1857/58], p. 164).