

A Marxist Critique of John Bellamy Foster's Marxist Ecology

Introduction

In his book *The Dialectics of Ecology: Socialism and Nature* (2024) John Bellamy Foster, the editor of the long-running Marxist journal *Monthly Review*, carries forward his eco-socialism project, which he began with *Marx's Ecology: Materialism and Nature* (2000) and which he furthered in *The Return of Nature: Socialism and Ecology* (2021). Foster believes that Marx put forward a theory of “metabolic rift” that constitutes a materialist ecological critique of capitalism. That is, “Marx employed the concept of a ‘rift’ in the metabolic relation between human beings and the earth to capture the material estrangement of human beings within capitalist society from the natural conditions which formed the basis for their existence—what he called ‘the everlasting nature-imposed condition of human existence’ (Foster 2020, p. 249).” Foster claims “...it is impossible to avoid the conclusion that Marx’s view of capitalist agriculture and of the metabolic rift in the nature-imposed relations between human beings and the soil led him to the wider concept of ecological sustainability—a notion that he thought of very limited practical relevance to capitalist society, which was incapable of applying rational scientific methods in this area, but essential for a society of associated producers (p. 250).”

In this paper I argue that Foster overextends Marx’ concept of “metabolic rift,” and in doing so Foster reifies nature. This reification distorts Marx’ concept of labor 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” (*Capital* Vol. 1, p. 283). Rectifying this distortion requires digging into Marx’ understanding of value as a social relation and his understanding of how capital expands itself by accessing both natural resources and technology. I

argue that a more robust, class-struggle ecology should focus on the need to exercise democratic control over the expansion of capital.

What is the “metabolic rift”?

In Volume 1 of *Capital*, Marx observes that large-scale industrialization of agriculture “...disturbs the metabolic interaction between man and the earth, i.e., it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil (p. 636).” In this passage Marx refers to the transport of agricultural products from the country to towns for consumption and the subsequent dumping of organic wastes—factory waste, domestic waste, offal, excrement—that were, in pre-industrial times, were returned to the soil. Organic pollution of town environments corresponded to a loss of soil fertility in the countryside. Marx continues: “...by destroying the circumstances surround that metabolism, which originated in a merely natural and spontaneous fashion, it compels its systematic restoration as a regulative law of social production, and in a form adequate to the full development of the human race.”

Foster claims (2020, p. 243): “Given the centrality that he assigned to the concept of metabolism... it should not surprise us that this concept also plays a central role in Marx’s vision of a future society of associated producers.” Indeed, a bullet point in *The Communist Manifesto* (Marx and Engels, 1847) calls for “Combination of agriculture with manufacturing industries; gradual abolition of all the distinction between town and country by a more equable distribution of the populace over the country.”

In Volume 3 of *Capital*, Marx argues that private property is “the barrier and obstacle...” to “agricultural production and the rational treatment, maintenance, and improvement of land itself,” the obstacle taking different forms in the case of small-scale vs. large-scale

landownership. The latter “produces conditions that provoke an irreparable *rift* in the interdependent process of social metabolism, a metabolism prescribed by the natural laws of life itself (p. 949, emphasis added).” Here Marx references the organic chemist Feiherr Justus von Liebig (1803-73), from whom he apparently took the concept of metabolism (*Stoffwechsel*) that he transformed and applied to his analysis of the labor process in Chapter 7 of Volume 1.

Later in Volume 3, Marx references “metabolism” in a more expansive way: “The realm of freedom really begins only where labor determined by necessity and external expediency ends; it lies by its very nature beyond the sphere of material production proper. Just as the savage must wrestle with nature to satisfy his needs, to maintain and reproduce his life, so must civilized man, and he must do so in all forms of society and under all possible modes of production. This realm of natural necessity expands with his development, because his needs do too; but the productive forces to satisfy these expand at the same time. Freedom, in this sphere, can consist only in this, that socialized man, the associated producers, govern *the human metabolism with nature* in a rational way, bringing it under their collective control instead of being dominated by it as a blind power, accomplishing it with the least expenditure of energy and in conditions most worthy and appropriate for their human nature (p. 958, emphasis added).”

For Marx, self-valorization of value drives technical progress in order to cheapen labor power (*Capital* Vol. 1, Chapter 12), and likewise impels the exploitation of more fertile lands and natural resources (Chapter 24) as capitalists seek to expand the constant capital brought into contact with living labor. The ensuing mechanization and industrialization of agriculture (Chapter 15) disrupts existing economic relations and accelerates depletion of the soil. “Capitalist production, therefore, only develops the techniques and degree of combination of the social process of production by simultaneously undermining the original sources of all wealth—

the soil and the worker (637).” This undermining can only be resolved through “systematic restoration as a regulative law of social production” (636) by establishing a society of associated producers (*Capital* Vol. 3, p. 959).

Foster’s overextension of Marx’ “metabolic rift”

Foster characterizes Marx’ metabolic rift idea as representing a “material estrangement of human beings within capitalist society from the natural conditions which formed the basis for their existence...” and a “metabolic rift in the nature-imposed relations between human beings and the soil...”

These reformulations of Marx reify nature, casting it causally, as a necessity, rather than as the opposite side of a dialectical relationship. (If there is a rift, what is the relation before the rift, and after the rift is healed?) This reification recapitulates the theme, pervasive in bourgeois philosophy, that there exists a natural condition of man, as with Thomas Hobbes’ *Doctrine of the State of Nature* (1651), which characterizes this condition as “all against all,” or Jean-Jacques Rousseau’s *Emile* (1762): “Nature made me happy and good...”. This same theme of a natural condition of man was carried forth into the ecological movement that arose in the 1960s and took shape following Earth Day (e.g., Joni Mitchell’s lyrics to her song “Woodstock” (1970): “...and we’ve got to get ourselves back to the garden”).

Foster has unfortunately grafted this concept of nature—as arbitrating force and ethical guide—on to his Marxism. The implant (1) makes for bad ecology, and (2) is incompatible with Marx’ and Engels’ materialism. Combined, these two shortcomings lead Foster to overemphasize millenarian and utopian facets of Marxism as the sole and indispensable solutions to global ecological crisis. This overemphasis undercuts the potential power of a much-needed class-struggle approach to ecology.

Bad Ecology

Marx' abstraction that capitalist production only develops technology by "undermining... the soil and the worker" may be valid; however, the abstraction should be supported by concrete, current facts. The ecological disruptions that gave rise to Marx' "metabolic rift" observation were soil depletion, development of agricultural production, transport of material and wastes, organic pollution of urban streams, inadequate soil replenishment, etc.

Consider that soil depletion is a significant problem in developing as well as fully industrialized countries (Kim and Bevis, 2019) and that soil depletion has been ongoing since the (pre-capitalist) start of cultivation. It is, indeed, accelerated by industrial cultivation (Sanderman et al. 2017). However, despite this depletion technology has vastly increased crop yields, and improved crop yields can, and do, *reduce* the amount of critical natural habitat turned into agricultural land (Ritchie, 2021). In the U.S., the 1972 Clean Water Act has since supported \$650 billion in sewage treatment plant construction, greatly reducing water pollution and making more rivers safe for fishing (Keiser and Shapiro, 2018), even as industrialization has continued apace. Currently more than half of the sludge produced by U.S. municipal sewage treatment plants is applied to land.

The point here is that as industrial society develops, agricultural needs and conditions change; the fate and transport of pollutants changes, and the effects on natural systems changes—as does our understanding of natural systems. Ecological relationships are specific to time and place (are concrete). In ecology—as in social criticism—few grand generalizations hold valid against historical progress. If the concept of a "metabolic rift" is to be retained as a useful abstraction—that is, if such a rift is *generally* associated with capitalism, or *generally* associated with industrialization, considerably more analysis is needed to characterize the present-day

relationships of the productive forces (technology) and the societal regulation of those forces (environmental mitigation), and how the co-development of technology and mitigation drives changes in the character of the rift.

Incompatibility with Marx' Materialism

Foster's invocation of nature as an entity from which human beings can be estranged implies a natural state of man.¹

¹ Foster's slip into a non-dialectical view is illustrated by a misquote in Foster's key passage about "metabolic rift" (see p. 1 above). Foster (2020, p. 548) says: "Marx employed the concept of a 'rift' in the metabolic relation between human beings and the earth to capture the material estrangement of human beings within capitalist society from the natural conditions which formed the basis for their existence—what he called 'the everlasting nature-imposed condition[s] of human existence.'" This phrase that Foster attributes to Marx is in Chapter 7 of Vol. 1, "The Labor Process and the Valorization Process." Here it is in full context: "The labor process, as we have just presented it in its simple and abstract elements, is purposeful activity aimed at the production of use-values. It is an appropriation of what exists in nature for the requirements of man. It is the universal condition for the metabolic interaction [*Stoffwechsel*] between man and nature, the everlasting nature-imposed condition of human existence, and it is therefore independent of every form of that existence, or rather it is common to all forms of society in which human beings live (p. 290)." For Marx, the *labor process* (that is, the "*process between man and nature*,") is the "everlasting nature-imposed condition of human existence." Foster remakes this into "natural conditions which formed the basis for [man's] existence."

As the Marxist biologists Richard Levins and Richard Lewontin (1994) point out: “The trouble with the question of human nature is that it is the wrong question (p. 257)”—that is, the question itself carries the vestige of Platonic idealism. It looks for “ideal uniformity (p. 258)” rather than abstracting from a diverse and complicated reality.

Contrary to this bourgeois concept of a natural state of man, Engels says that “Labor created man himself,” and attributes to labor what is distinctly human: “...the animal merely *uses* external nature, and brings about changes in it simply by his presence; man by his changes makes it serve his ends, *masters* it (‘The Part Played by Labor in the Transition of Ape to Man,’ in: *Dialectics of Nature*, p. 291, emphasis in original).”

This view of labor as a dialectical process in which humanity confronts nature, changes nature, and changes itself is the key that opens the door to development of a Marxist ecology. Foster (2024, p. 54) in fact explicates this: “Here, the analysis was grounded in the *dialectics of nature and society*, evolving out of human labor and production and the human social metabolism with nature.... What in fact mediated between the two... was human labor and production, that is, the social metabolism (emphasis in original).”

Unfortunately, Foster then makes a conceptual leap from this “social metabolism” to a “metabolic rift” which will only be healed when, in the words of Marx, “...the associated producers govern the human metabolism with nature in a rational way.” Thus for Foster the connection between class struggle and ecology becomes limited to calling for socialism as the only way to forestall eventual ecological collapse: “A broad revolutionary ecological and socialist strategy has to be articulated that transcends the dominant liberal refrains of individual “adaptation” and “resilience,” which largely deny the realities of class, race, gender, and imperialism—along with the metabolic rift between capitalism and the environment. The only

meaningful, radical approach to these unprecedented challenges and multiple levels of catastrophe is that of *socialism as a pathway to ecological survival*.” (2024, p. 202, emphasis in original).”

Foster’s unfortunate and unwarranted leap—from the Marxist idea of a social metabolism with nature to the subjective and undialectical idea that there is a rift that can only be healed by socialism—reflects the challenge, within Marxism, of how to bring forth a subject that can take historical action without invoking a non-material force. Unless this problem is solved, Marx’ point—as in “the point is to change it” (Theses on Feuerbach, 1845)—has no champion. Foster gives his “Marxist” ecology such a champion by inserting nature as a source of moral and ethical values and the threat of ecological collapse as an existential necessity that commands human action on those values. This is both subjective and non-dialectical: Subjective because the conception of nature as a category endowed with guiding principles is subjective (that is, the concept is a projection of the author’s socially mediated ideology), and non-dialectical because it fails to examine nature as one side of a subject-object relation that is always in process.

Value and Nature

Marx consistently defined *value* as “socially necessary labor time.” For commodities, value is distinguished from *use-value*, which is only realized in use or consumption (Vol. 1, p. 126). In the process of exchange, value is abstracted, and all the sensuous characteristics of the commodity are extinguished (p. 128). The social process of production is driven by the creation of value, the exchange of value, self-valorization, and accumulation as capitalism establishes itself and inexorably expands. In contrast, nature is real and sensuous. It lacks congealed labor, and therefore lacks value.

This can be confusing, because commodities are (generally) real objects, and can be created only by employing the use-values supplied by nature. Therefore, it is possible to talk of wealth, as opposed to value, being made up of both labor and natural resources. Marx quotes William Petty (1667): “Labor is the father of material wealth, the earth its mother” (*Capital* Vol. 1, p. 133). However, Marx is careful, throughout all of *Capital*, to maintain the distinction of value, as labor, from the use-value, which can be contributed by nature. Towards the end of Volume 3, Marx writes: “Value is labor. So surplus-value cannot be earth (p. 954).”

Foster (2024, p. 127) notes that Marx and Engels had, early on (in *The German Ideology*, written in 1846) used the concept of “natural capital.” However, Marx dropped it within a year, apparently as he clarified his ideas in his critique of Proudhon (*The Poverty of Philosophy*, 1847). Thereafter Marx distinguished between earth and land as a material entity, or *earth matter*, vs. land, or nature, turned into *earth capital*.

Earth capital, the value of land represented by the stream of payments obtained or obtainable by ground-rent, is an appropriation of previously produced surplus-value that the landowner has monopoly power to command via the assertion of domain over private property (Vol. 3, Part 6). Marx’ analysis of ground-rent can be extended to non-produced resources (including natural resources) generally (Basu, 2018). The value of the resources held by a landowner, and by appearances generated by the exploitation of the resources themselves (beyond the labor required for that exploitation) is in essence the appropriation of an aliquot of the surplus value created by laborers globally.

Marx’ consistently defines value as socially necessary labor, and capital as “the means of production monopolized by a particular section of society (Vol. 3, p. 953)”. For Marx, both value and capital are social constructions based in material relations of production.

In contrast, non-Marxist concepts of value are at the heart of most debates over environmental protection. Business interests and environmental advocates share an ultimately similar concept of “natural capital.” E.F. Schumacher, in *Small is Beautiful* (1973) excoriates Marx for adhering to a labor theory of value, stating “Far larger is the capital provided by nature and not by man.... We have been living on the capital of living nature for some time (p. 15).” Schumacher holds that natural assets, being irreplaceable, cannot be quantified. Business interests, on the other hand, seek to account for (quantify) natural assets in terms of “ecosystem services,” thereby expanding the scope of capital into new areas and leveraging these assets as collateral for new and expanded production (Foster 2024, Chapter 4). As Foster (2024, p. 128) notes (correctly), “...the notion of natural capital has to be seen as a dangerous one altogether in a capitalist society... it is easily incorporated into an all-inclusive, ahistorical notion of capital, which is treated as homogeneous and to be measured in terms of a single yardstick of exchange-value.”

For Marx and Engels, nature *as nature*—that is, as the opposite in a dialectical relation to human beings—is excluded from value. Value is a social relation and derives solely from labor, not from nature.

The Transformation of Surplus Value into Capital

In the passage quoted above, Foster continues: “...capitalism is a system of accumulation geared to exponential expansion, hence leading to a drawdown of natural resources.” This is, in a phrase, the essence of Foster’s argument: capitalism is an uncontrollable destructive power. It follows that the protection of nature (healing the “rift”) can only occur by replacing capitalism with a system that allocates resources intentionally, as envisioned by Marx.

However, we should ask: If capitalism is driven by the self-valorization of *value* (and the accumulation of surplus-value) and if nature is, by definition, *not* value, why then must capitalism, by necessity, be destructive of nature? To answer this question, we need to look how, according to Marx, capital makes use of natural resources and technology to expand its scope.

Chapter 24 of Volume 1 of *Capital*, titled “The Transformation of Surplus Value into Capital,” is about the mode of accumulation of capital—rather than the self-valorization that characterizes simple reproduction (which is presented in the previous Chapter 23).

Marx begins Chapter 24 by noting that, while the sale and purchase of labor-power (equal exchange) is the *form* of the relation between capitalist and worker, the *content* is “the constant appropriation by the capitalist, without equivalent, of a portion of the labor of others which has already been objectified [in the process of production], and his repeated exchange of this labor for a greater quantity of the living labor of others...”

Marx notes the elasticity of the relation between objectified labor (constant capital) and fresh, living labor (variable capital). He gives three examples. In mining, the constant capital consists almost entirely of equipment which can easily absorb an increased quantity of labor (e.g., via shift labor). Likewise, in agriculture, on a given acreage of fertilized land, greater labor devoted to cultivation increases production without additional equipment. In industry, additional expenditure of labor “presupposes a corresponding additional expenditure of raw materials, but not necessarily of instruments of labor.”

Marx concludes the examples with a general result: “...by incorporating with itself the two primary creators of wealth, labor-power and land, capital acquires a power of expansion that permits it to augment the elements of its accumulation beyond the limits apparently fixed by its

own magnitude, or by the value and the mass of the means of production which have already been produced, and in which it has its being (p. 752).”

Significantly, science and technology have the same effect of expanding capital’s reach. \ Marx says: “Like the increased exploitation of natural wealth resulting from the simple act of increasing the pressure under which labor-power has to operate, science and technology give capital a power of expansion which is independent of the given magnitude of the capital actually functioning (p. 754).”

The exploitation of natural resources under capitalism can be best understood by investigating beyond the process of valorization and simple reproduction and focusing on the process of the accumulation of surplus value—the collection of rents (enabled by monopoly power over land and other property) and the incorporation of that socialized surplus value into new commodities through contact with fresh labor. This process of accumulation is mediated by technology.

Technology

In a footnote (Vol. 1, p. 493) Marx regrets the lack of a critical history of technology which, he believed would do much to explain the real (material) historical processes that condition the development of ideas: “Technology reveals the active relation of man to nature, the direct process of the production of his life, and thereby it also lays bare the process of the production of the social relations of his life, and of the mental conceptions that flow from those relations.”

Important to our inquiry here is that technology, taken as the whole of tools and skills, *is* the relationship of social production to nature. The significance of this point to ecology emerges only when we cease reifying nature. As long as nature is imbued with projected, ideological

characteristics and ethical values, the relation of social production to nature appears in abstract form as a conflict between industrial society and nature, or as a conflict between humanity itself and nature. When this ideological curtain is pulled back, the essence of nature, which is in active relation with humanity, reveals itself, and we see that technology is the key to the relation and the consequences of that relation—and to understanding nature itself.

The Politics of Accumulation

Why is the distinction between the process of production (characterized by self-valorization of value) vs. accumulation (transformation of surplus value into capital, characterized by appropriation and the power of expansion)—so important to ecological activism?

Production and the self-valorization of value have the appearance of a zero-sum game with ecological preservation. Demands for environmental protection are characterized as being in a trade-off with economic demands for jobs or lower prices. When the expansion of capital is interpreted solely in the context of its drive to expand production, social production presents itself to be objectively in conflict with nature. This allows capital (as represented by capitalists, including their technical and sociological experts) to present its interests either as a social benefit (jobs, economic growth) or failing that, as a legitimate pursuit of corporate aims (to continue as a going concern and make a standard rate of profit). These pursuits are to be “balanced” with environmental “interests.”

The power of expansion has a different character. Capital’s power of expansion, whether by accessing new natural resources or by applying science and technology, is mediated through law, regulation, labor negotiations, and civil society generally. It is anything but a zero-sum game, as the relationships among technology, natural resource exploitation, and the productive

process are concrete, specific to time and place, and become ever more complex as capitalism develops.

A recent maturing of the environmental movement was presaged in the seminal essay, “The Death of Environmentalism” (Shellenberger and Nordhaus, 2004). The authors stated that environmentalism had become “just another special interest,” about “protecting a supposed ‘thing’” and that environmentalists think of themselves as “representatives and defenders of this thing.” They advocated advancing technical solutions to global warming, including “big investments into clean energy, transportation and efficiency,” ideas which were, years later, incorporated into proposed legislation (the “Green New Deal,” then “Build Back Better”), and which finally became law in 2022 under President Joe Biden’s Inflation Reduction Act (IRA). The IRA is projected to spur economy-wide reductions in CO₂ emissions by 35 to 43% below 2005 levels in 2030 (USEPA, 2023).

In his chapter on “Planned Degrowth,” Foster (2024) addresses these initiatives only to dismiss them: “There is no doubt that many on the left see the entire solution today as consisting of a Green New Deal that would expand green jobs and green technology, leading to green growth in a seemingly virtuous circle. But since this is usually geared to a Keynesian growth economy and defended in those terms, the assumptions behind it are questionable (p. 270).”

Shellenberger and Nordhaus are not Marxists, but they get it that the environmental movement was lost in the wilderness (so to speak) so long as it treated nature as a “thing” to be protected, rather than seeking control over the *relation* to nature—that is control of socialized production represented by the economy as a whole. Foster is a Marxist, but is convinced that “economic growth, based on nonstop capital accumulation is the main cause of the destruction of the earth as a safe place for humanity (2024, p. 241).” This position leaves little room for

advocacy for control over the means and methods of capital accumulation. Foster is unable to see that “nonstop capital accumulation” is the actual, inescapable, present-day, real relationship of human beings to nature under capitalism, and that this relation can only be transcended, dialectically, in a forward direction. That blindness is related to Foster’s view of capitalism as a malign force that impinges on nature and man, rather than the Marxist view that capitalism is an historical stage of human development which will—as the internal conflict between the social forces of production and the relations of production becomes untenable—give way to a new epoch.

Marx captured the dynamics of that conflict between the social forces of production and the relations of production through his concepts of ground rent, accumulation, and the expansion of the scope of capital. Foster engages these concepts (2024, p. 110-11; 2020, p. 237) only for historical support of his “metabolic rift” thesis.

Toward a Class-Struggle Ecology

Foster (2024, p. 78, in the midst of addressing Bruno Latour’s negation of nature as a concept standing for the whole of material reality) says that the “eco-modernism” of Shellenberger and Nordhaus requires “that we should uncritically ‘love’ our technological Frankenstein monsters—disregarding the fact that adopting such a position would ensure a total incapacity to address the human-social dimensions of the planetary ecological emergency.”

But demanding democratic control over capital’s expansion doesn’t require uncritical love. On the contrary, the inexorable advancement of technology is a nexus where the working class can challenge capital’s monopoly power to direct the means of production. Demands for a rapid transition to renewable energy, for better rail transport, to re-establish local manufacturing, to mandate cradle-to-grave systems for recycling, to plan and build walkable cities—these are

points of class struggle as well as steps toward safer and more equitable living conditions. True, they have not been engaged, much, as class issues. That reflects a lack of working-class leadership. Labor unions tend to regard these initiatives in a transactional way (they create jobs) rather than as a long-term class-wide interest.

There is no reason to believe that a technologically advanced society, like a primitive society, cannot co-evolve with nature in a desirable direction. However, there are significant illusions—ideological obstacles—that must be overcome to successfully articulate and promote the idea that the working class can bring about such a society.

These illusions can be summarized as:

- (1) The reification of nature; its characterization as a “thing” to be protected and a source of ethical value (as in a right way to live), rather than as one side of the labor process by which both man and nature are transformed.
- (2) The characterization of capitalism as a force that threatens both man and nature, rather than as a transient social order and historical stage of human development.
- (3) The view that nature has inherent value (“natural capital”), rather than developing a critique that the exploitation of natural resources is appropriation of previously produced (socialized) surplus value and expansion of the scope of capital.
- (4) The view that uncontrolled growth makes capitalism a mere destructive force, rather than acknowledging that: “The bourgeoisie cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production, and with them the whole relations of society (*The Communist Manifesto*, quoted in a footnote in *Capital* Vol. 1, p. 617).”

- (5) The view of environmental and social regulation as merely holding back the forward destructive power of capitalism rather than, as Marx said of the 1867 Factory Act, “By maturing the material conditions and the social combination of the process of production, it matures the contradictions and antagonisms of the capitalist form of that process, and thereby ripens both the elements for forming a new society and the forces tending towards the overthrow of the old one (Vol. 1, p. 635).”
- (6) A view of science and technology as intrinsic instruments of capital rather than as instruments of labor that have been appropriated, temporarily, for capital’s ends. That is, rather than the insight that science and technology, in their lasting essence, expand the power by which “man through his own actions, mediates, regulates, and controls the metabolism between himself and nature.”

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