

## II. Capitalism and Ecology

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The social relation of capital, as we all know, is a contradictory one. These contradictions, though stemming from capitalism's internal laws of motion, extend out to phenomena that are usually conceived as external to the system, threatening the integrity of the entire biosphere and everything within it as a result of capital's relentless expansion. How to understand capitalism's ecological contradictions has therefore become a subject of heated debate among socialists. Two crucial issues in this debate are: (1) must ecological crisis lead to economic crisis under capitalism?, and (2) to what extent is there an ecological contradiction at the heart of capitalist society?

What is at issue here can be best understood if we turn to Marx. One of the key elements in Marx's ecological analysis, as I explained in *Marx's Ecology*, is his theory of metabolic rift. 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 that formed the basis for their existence. One way in which this manifested itself was in the extreme separation of town and country under capitalism, which grew out of the separation of the mass of the population from the soil.

Nineteenth century agricultural chemists, most notably Justus von Liebig, had discovered that the loss of soil nutrients—such as nitrogen, phosphorus, and potassium—through the exportation of food and fiber to the city—was disrupting the soil nutrient cycle and undermining capitalist agriculture, while burying cities in waste. Rather than constituting a rational form of production, British high farming (the most advanced capitalist agriculture of the day) could be best described, according to Liebig, as a robbery system because of its effects on the soil. The historical answer of the system to this declining soil productivity was, initially, importation of vast quantities of bones from the Continent and guano (bird droppings) from Peru, and, later, the development of synthetic fertilizers. Synthetic fertilizers, however, created further problems. Thus arose an ever widening and more complex metabolic rift, leading to the severe disarticulations in the nature-society relation that characterize contemporary agriculture and industry.

Marx recognized that this metabolic rift represented a problem of sustainability. In an oft-quoted passage he remarked that capitalism sapped the vitality of the everlasting sources of wealth—the soil and the worker. Nor was the problem of the metabolic rift confined simply to the soil. Marx developed an account of sustainability—the conservation and if need be restoration of the earth so that it could be passed on in an equal or improved state to the succeeding chain of human generations—that directly addressed such issues as soil nutrient recycling, pollution, sanitary conditions, deforestation, floods, desertification, climate change, recycling of industrial wastes, diversity of species, the commodification of species, and other issues. His closely related studies of evolutionary theory led him toward notions of coevolution. His conflict with Malthus forced him to consider the historical (rather than natural) sources of overpopulation (a term Marx used while Malthus did not). Marx's analysis of primitive accumulation pointed to the separation of workers from the land as the formative contradiction of capitalism. His critique of political economy highlighted the commodification of all of life and the dominant role played by accumulation without end, rooted in exchange value as opposed to use value. Quoting Thomas MFCntzer, the revolutionary leader of the sixteenth century German Peasants War, Marx observed: it is intolerable that all creatures have been made into property, the fish in the water, the birds in the air, the plants on the earth—all living things must also become free' (MFCntzer, *Collected Works*, p. 335; Marx and Engels, *Collected Works*, vol. 3, p. 172).

Nevertheless, it has become the fashion in certain ecosocialist circles to stress not so much the wealth of ecological insights that Marx provided, as to focus on what are characterized as major shortcomings of Marx's analysis that prevented him from developing a full-fledged ecological Marxism. Writing in *Capitalism, Nature, Socialism*, the

leading journal of ecosocialism edited by James O'Connor, Alan Rudy has contended that a limitation to Marx's ecology<sup>85</sup> is that Marx did not theorize the metabolic rift' as an important moment in the crisis tendencies of capitalism. This point has been enunciated more fully by O'Connor, who has argued that, while Marx recognized the existence of ecologically destructive methods within agriculture, he never considered the possibility that ecological degradation might threaten economic crisis of a particular type, namely, underproduction of capital, due to the impairment of the natural conditions of production. Hence Marx, O'Connor states, failed to put two and two together so as to develop a theory of how increasing ecological costs contributed to decreasing profitability and accumulation crisis. His analysis thus fell short of the conceptual framework that O'Connor has labeled ecological Marxism.\*

O'Connor's own theoretical contributions are an attempt to do what Marx failed to do here—demonstrating how capital's impairment of the conditions of production creates a specific form of economic crisis for capitalism, or what O'Connor has called the second contradiction of capitalism. Capitalism, he argues, has always been beset by a first contradiction, or economic crisis tendency, associated with a rising rate of surplus value and the resulting barriers to the realization of surplus value or profits through the sale of goods and services, due to inequalities in income and wealth. This first contradiction represents an economic crisis that manifests itself on the demand side (that is, on the side of the realization of profits).

Yet in focusing exclusively on this first contradiction, O'Connor argues, socialist critics of capitalism have neglected the second contradiction, associated with the undermining of capitalism's conditions of production. He usefully derives from Marx's analysis three types of conditions of production: (1) the personal conditions of production associated with the reproduction of human labor power, (2) the external-natural conditions of production (forests, oil fields, water supplies, bird species, etc.), and (3) the general-communal conditions of production (i.e., the built environment, for example, cities, including their urban infrastructure). What gives all of these elements the status of conditions of production is that they are not produced (or fully produced) by capitalism but are rather fictitious commodities, to use Karl Polanyi's term. Capitalism does not directly produce human beings or even the capacity to labor— however much it may wish to treat labor power as a commodity virtually like any other. Nor does it produce external nature. The built environment, for its part, emerges in a way that is dictated by spatial and temporal factors not directly subject to the law of value.

Capital is thus dependent for its production on the use and transformation of natural *conditions* of production that to some extent represent natural scarcities, and that the economic system is incapable of preserving intact and in relatively costless form. Degradation of these conditions of production generates rising costs for capitalism, squeezing profits on the cost (or supply) side: thus the second contradiction of capitalism. In his book, *The Enemy of Nature*, Joel Kovel, in line with O'Connor, refers to ecological crisis arising from capital's degradation of its own conditions of production on an ever increasing scale as an iron necessity. He remarks that, This degradation will have a contradictory effect on profitability itself ...either directly, by so fouling the natural ground of production that it breaks down, or indirectly, through the reinternalization of the costs that had been expelled into the environment.\*

O'Connor identifies what he calls ecological Marxist theory entirely with this second contradiction, while he points to the first contradiction as related to traditional Marxism. Both the first and second contradictions take the form of economic crisis tendencies, and both exist simultaneously at this point in history. But the argument suggests that the second contradiction, and hence supply-side economic contradictions, rooted in increasing costs, are now dominant. Capitalism is therefore caught up in an economic crisis tendency associated with the *underproduction* of capital, resulting from its damaging of its own conditions of production: a form of economic crisis that, in O'Connor's terms, has more to do with *external* or natural barriers than with the *internal* or class antagonisms of the system.

An important part of this argument is the way this is tied to the growth of contemporary radical social movements. The first contradiction is associated with the class-based labor movement, and while this can still be said to exist, it is on the wane in comparison to new social movements arising from the second contradiction. O'Connor contends that there are three general types of new social movements each of which has its counterpart in the undermining of a different condition of production: movements such as feminism, concerned with the politics of the body, are

engendered by the undermining of the personal conditions of production; the environmental movement proper has its source in the undermining of the external-natural conditions of production; and urban movements have their origin in the undermining of the general-communal conditions of production.

The power of the second contradiction thesis, and the reason for its influence on socialist (and nonsocialist) thought, should now be obvious. It provides a single logical argument that links ecological scarcity, economic crisis, and the growth of new movements for social change. Nevertheless, there are, in my view, some difficulties with this approach which limit its proper field of application.

One way of understanding how designation of the second contradiction of capitalism as *the* defining thesis of ecological Marxism has divided socialist analysts in the ecological realm can be seen in a recent exchange in *Capitalism, Nature, Socialism*, which was given the title *Marx's Ecology* or Ecological Marxism. The term *Marx's Ecology* in this case referred ostensibly to the title of my book, but the nature of the argument presented by the critics was that Marx's own contributions to ecology, as described in that book, were deficient precisely because they did not lead to ecological Marxism as represented by O'Connor's second contradiction. Specifically, the point was made, as indicated earlier, that Marx did not explain how ecological crisis generated a crisis of accumulation for capitalism, and hence his analysis was incomplete, unsystematic, and undeveloped. Thus as Rudy, representing this point of view, put it: Marx's analysis of the role of ecological crisis in crises of capitalism remained underdeveloped.\*

But is it reasonable to contend that a Marxist approach to ecological problems is one that must necessarily lead directly to a theory of economic crisis under capitalism? Should the extent to which a Marxist ecological analysis is perceived as a developed view be determined by the degree in which it feeds into a specific theory of economic crisis? There is a certain economism and functionalism that creeps in when the problem is framed in this way. The whole thrust of the second contradiction conception is that once ecological damage is translated into an economic crisis for capitalism a feedback mechanism is set into play, both directly through capital's attempt to hold down the growing costs of production associated with the undermining of its conditions of production, and indirectly through attempts by social movements to force the system to internalize the externalities, i.e., pay the social and environmental costs that capital has sought to externalize—thereby pushing it in the direction of more ecologically sustainable production. The obvious presumption is that an economic crisis stemming from ecological causes constitutes an opportunity for the left, a bandwagon to jump on so to speak—and one, moreover, that allows it to build an alliance between a class-based labor movement and the new social movements.

It is my contention, however, that there is no such feedback mechanism—at least for capitalism as a whole. As the German Greens have said, the system will recognize that money cannot be eaten only when the last tree has been cut—and not before.\* We should not underestimate capitalism's capacity to accumulate in the midst of the most blatant ecological destruction, to profit from environmental degradation (for example through the growth of the waste management industry), and to continue to destroy the earth to the point of no return—both for human society and for most of the world's living species. In other words, the dangers of a deepening ecological problem are *all the more serious* because the system does not have an internal (or external) regulatory mechanism that causes it to reorganize. There is no ecological counterpart to the business cycle.\*

There is no reason to believe that the damage inflicted on the environment is most serious where it principally affects the conditions of production, which by definition involve elements of the natural-physical environment that have been substantially incorporated into the system. The Amazon forest may have provided hardwood timber and other resources for capital, but most of it has until recently been outside what can be called the conditions of production of capitalism. The fifty percent of all species that are believed to reside in the tropical forests and are currently threatened with extinction in a matter of decades, are not only for the most part not incorporated into the global accumulation process, most of them remain undocumented, still unknown to science. If we take the case of the ozone layer, which has been thinned enormously, imperiling the very existence of life on earth, it would clearly be a mistake to try to squeeze this into an analysis of the conditions of production—as if it were simply a

precondition of the economy and not a precondition of life as we know it.

All of this suggests that an argument that focuses on conditions of production and the second contradiction of capitalism tends to downplay the full dimensions of the ecological crisis and even of capitalism's impact on the environment in the process of trying to force everything into the locked box of a specific economic crisis theory. Capitalism's tendency to displace environmental problems (the fact that it uses the whole biosphere as a giant trash can and at the same time is able to run to some extent from one ecosystem to another, operating, as Marx said, under the principle of after me the deluge), means that the earth remains in large part a free gift to capital. Nor is there any prospect that this will change fundamentally, since capitalism is in many ways a system of unpaid costs.

One can find an illustration of what I am saying here by referring to the Bush Administration's *Climate Action Report, 2002* on global warming, issued by the Environmental Protection Agency (EPA). The EPA acknowledged the dangers to life and living conditions represented by global warming, but emphasized that in the United States the environmental damage would be most visible in the melting of snow in the mountains, and the like. Where the conditions of production of agriculture were concerned, global warming, it was suggested, might even increase overall agricultural productivity. This lack of a clear connection between environmental damage and damage to the economic conditions of production was used (via standard cost-benefit analysis) to justify a policy of *adapting* to global warming as it developed, rather than taking measures to decrease the extent of global warming—since these would increase the costs of production.

It follows that there is no natural feedback mechanism that automatically turns environmental destruction into increasing costs for capital itself—however much it may be a cost for nature and society. And if social movements seek to contain the damage by regulating capitalism, there is no surety that this will seriously squeeze profit margins on the cost side forcing capital to reform—or that this won't, in fact, provide entirely new ways to profit from environmental destruction. Hence, there is every reason to doubt the inevitability of economic crisis in the near future emanating primarily from such causes.

There are also empirical problems, I believe, with this theory of ecologically induced economic crisis. Logically, it is true, rising raw material costs and other costs associated with natural scarcity could undermine profit margins and generate economic crisis. This factor played a role in nineteenth century accumulation crises, as reflected in the classical theory of the tendency of the rate of profit to fall. It is always important to capital that such costs, associated with natural scarcity, be kept down. Yet, there is no evidence that such costs constitute serious, insuperable barriers to accumulation for the system as a whole today. As Marx indicated in his time, the exhaustion of coal mines may eventually increase the cost of coal, but in the meantime production is often boosted by falling energy costs.\*

Nor has pollution abatement put an unbearable burden on capital. Government estimates that rely on surveys of business executives indicate that business is concerned about increasing environmental costs, but this type of evidence is not a very convincing basis for arguing that environmental costs are actually squeezing profit margins in the aggregate—and should be taken no more seriously than the unceasing complaints of business executives with regard to wage costs squeezing profits. Indeed, I would argue—but of course cannot develop the argument here for lack of time—that the main economic crisis tendency of capitalism is still a rising rate of exploitation and hence widening profit margins and an inability to realize surplus value—what O'Connor calls the first contradiction.

A further difficulty with the second contradiction of capitalism conception—as a way of defining ecological Marxism—is that it forces a dualistic economic perspective on us that once entered into is difficult to escape from. There are two contradictions of capitalism (both economic crisis tendencies), one *internal* and emanating principally from class struggle, the other *external* and emanating principally from the undermining of the conditions of production. These in turn create two forms of social movements—traditional class-based movements emanating from the first contradiction, and new social movements, emanating from the second contradiction. Naturally, this suggests an alliance between the two types of movements based on the combined force of the two contradictions. But as the second contradiction is now dominant and the new social movements consequently more vital, the class-based movement tends to take a subordinate role in this analysis and strategy. Ecological Marxism, understood in this way,

is clearly an approach that sees the labor-based class struggle playing second fiddle. In this way it arguably divides the movement artificially (adding a further theoretical layer to existing divisions), reducing the field of hope. As Kovel, representing this perspective, has put it in *The Enemy of Nature*, there is no privileged agent of ecosocialist transformation—class revolt is not necessarily the key (p. 218).\*

My purpose here is not to deny the significance of the second contradiction theory altogether, or to gainsay the fact that it has illuminated important aspects of the problem of ecology under capitalism. There are certainly localized crises that can be viewed usefully in this way. Nor would I want to deny James O'Connor's enormous contribution to ecological socialism. Rather my intent is to argue that there is a danger that we will develop a Marxist analysis of ecological problems that is too economic, too narrow, too functionalist, and too prone to economic dualism—and of course too undialectical—to allow us to explore the full scale of the ecological contradiction that capitalism presents.

Here it makes sense to return once again to Marx. If one were to seek an example in the nineteenth century of the undermining of the conditions of production in the manner suggested by O'Connor's second contradiction theory, one could not find a better instance of this than the crisis of agriculture induced by the robbing of the soil of its nutrients. This crisis of the soil was widely perceived in Europe and the United States from the 1840s on, and was resolved only haphazardly at first through the raiding of European battlefields and catacombs for bones to spread on the soil and then through the massive importation of guano from Peru; to be followed soon after by the development of the first synthetic fertilizers, which were already coming into use in Marx's day, leading to the eventual development of nitrogen-based fertilizer by the time of the First World War. It might therefore have been possible for Marx to have emphasized the increasing ecological costs and the barriers to accumulation that this crisis of the soil generated. But his emphasis instead was on the metabolic rift, the larger structural ecological problem that this crisis of the soil reflected, which was in his terms irreparable under capitalism—despite the fact that technology, as in the case of synthetic fertilizer, might provide a temporary remedy.

Not only did Marx not focus primarily on how the ecological problems that he discerned contributed to economic crisis, but he also did not discuss their direct influence on the revolutionary overthrow of capitalism, which he saw as imminent.\* Instead in this sphere he was primarily—and increasingly—concerned with questions of sustainability, and the rational regulation of the metabolism of human society and nature (through the organization of human labor). It was for him a central issue in the building of communist society, which would demand a new relation to nature.

Indeed, it was precisely because Marx and Engels placed so much emphasis on the dissolution of the antagonistic relation between town and country as a key to overcoming the alienation of humanity from nature that they tended to see the ecological problem in terms that transcended both the narrow horizons of bourgeois society and the immediate objectives of the proletarian movement. Careful to avoid falling into the trap of the utopian socialists, proposing blueprints for a future society that went too far beyond the existing movement, they nonetheless emphasized—like Fourier and some of the other utopian socialists—the need for the movement to address the alienation of nature in the attempt to create a sustainable society.

Today ecological crisis looms larger in our vision of anticapitalist revolt—to a degree that Marx did not and could not perceive. But our overall vision of the ecological features of a socialist revolution is scarcely more radical than what Marx himself envisioned, with his idea of the dissolution of the antagonistic relation of town and country and an attempt to overcome the metabolic rift through sustainable production based on a communal society of freely associated producers. When William Morris developed his ideas for the reorganization of relations between town and country in *News from Nowhere* he was knowingly or unknowingly very close to the spirit of Marx.

We have no more reason today than Marx did in his day to restrict our analysis of ecological contradictions to what can be incorporated into some specific theory of economic crisis. Economic crisis theory can be overemphasized, even fetishized. Let me give you an example of this. For many years Marxist political economists of various persuasions have engaged in elaborate attempts to explain the imperialistic tendencies of capitalism—that is, the drive of the center of the system to exploit the periphery—by pointing to various specific theories of economic crisis.

The problem of all such perspectives, in my view, is that they miss the point: imperialism is not the product of this or that economic crisis (nor does its significance lie in how it in turn bears on economic crisis phenomena), rather it is just as basic to the system, as it has historically evolved, as the search for profits itself. In other words, imperialism is a necessary product of capitalism as a globalizing force, and to the extent that Marx himself dealt with imperialism it was of course mainly in this sense. Economic crisis can complicate things in certain instances. But attempts to see the whole reality of imperialism through the prism of economic crisis only obscures its essential nature.

In the case of ecological degradation we are dealing with a first order, not a second order, problem of capitalism (and not just of capitalism). Ecological degradation, like imperialism, is as basic to capitalism as the pursuit of profits itself (which depend to a large extent upon it). Nor should the environmental problem be seen largely through the economic prism in the sense that it derives its significance from the extent to which it generates economic crisis for capitalism. As Rosa Luxemburg pointed out, song birds were dying out not because they were directly part of capitalism, or its conditions of production, but simply because their habitat was destroyed in the process of the system's relentless expansion. Luxemburg rightly did not connect this phenomenon to economic crisis, but this did not stop her from raging against the destruction of what she called these defenseless little creatures.\*

There is no doubt that Luxemburg believed that the economy could be organized under socialism so as to lessen such destruction. But her reasons for advocating change were not in this case economic, though they were consistent with materialism. The ultimate strength of Marxist analysis has never resided chiefly in its economic crisis theory, nor even in its analysis of class struggle as such, but lies much deeper in its materialist conception of history, both human and natural—understood, as this only truly can be, as a dialectical and endlessly contingent process. This means overcoming in a nonreductive way the split between natural-physical science and social science that has been one of the main alienated intellectual products of bourgeois society.

Here I want to refer, by way of conclusion, to the recent death of Stephen Jay Gould, one of the greatest evolutionary thinkers since Darwin. Gould was a Marxist, who learned his Marxism—as he said in his crowning work, *The Structure of Evolutionary Theory*—at his daddy's knee. He was also a materialist, a self-consciously dialectical thinker, a critic of reification and reductionism, a theorist of evolution, an analyst of ecological problems, an exponent of the enormous contingency of natural and human existence, and a defender of human freedom. He was, in my view, by any meaningful definition, an ecological Marxist.

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## Notes

\* Alan Rudy, "Marx's Ecology and Rift Analysis," *Capitalism, Nature, Socialism* 12 (June 2001), p. 61; James O'Connor, *Natural Causes* (New York: Guilford Press, 1998), pp. 160, 165, 173. In the context in which he makes the statement quoted here, Rudy attributes the very same criticism of Marx to me. My outlook, however, is quite different, as this article should make clear.

\* Kovel, *The Enemy of Nature* (London: Zed Press, 2002), pp.3940.

\* Alan Rudy, contribution to Marx's Ecology or Ecological Marxism, *Capitalism, Nature, Socialism* 12 (September 2001), p. 143.

\* See Elmar Altvater, Ecological and Economic Modalities of Time and Space, in Martin O'Connor, ed., *Is Sustainable Capitalism Possible?* (New York: Guilford Press, 1994), pp. 8889.

\* The closest thing to a cyclical theory in this regard is Karl Polanyi's theory of the double movement, which refers to a political cycle of regulation-deregulation associated with capitalism's attempt to regulate its fictitious commodities (conditions of production). The double movement, however, plays no role in the second contradiction theory.

\* Karl Marx, *Theories of Surplus Value*, Part 3 (Moscow: Progress Publishers, 1971), p. 368. As noted in *The*

*Economist* magazine, there are now more proven reserves of petroleum than three decades ago<sup>85</sup>. Fears of oil scarcity prompted investment that led to better ways of producing oil, and to more efficient engines. *The Economist*, Working Miracles: Can Technology Save the Planet?, July 612, p. 13.

\* For criticisms of the second contradiction thesis that are similar to the ones offered here see Paul Burkett, Fusing Red and Green, *Monthly Review* 50 (February 1999), pp. 4756 and his *Marx and Nature* (New York: St. Martin's Press, 1999), pp. 19397.

\* It would of course be wrong to say that Marx never dealt with ecological costs as a possible source of economic crisis under capitalism. For example, his treatment of the tendency of the rate of profit to fall viewed rising raw material costs as a potential factor in a general crisis of profitability. See Michael Lebowitz, The General and Specific in Marx's Theory of Crisis, *Studies in Political Economy*, no. 7 (Winter 1982), pp. 913.

\* Rosa Luxemburg, *Letters* (Atlantic Highlands, N.J.: Humanities Press, 1993), 20203 (Luxemburg to Sonja Liebknecht, May 2, 1917).