

*Marx's Ecology and the Environmental History of World Capitalism**

By Jason W. Moore

It is a common occurrence in the history of ideas, that practitioners of an emergent research perspective will close ranks to defend its legitimacy. On the one hand, such defensiveness often serves to protect “emergent programs against the risks of premature death.”¹ On the other hand, it serves to undermine such programs’ longer-run development by cutting off the supply of new ideas. Proponents of the new perspective tend to classify challenges as more or less serious threats. Such challenges are evaluated on this basis rather more than on their merits. External critiques become the preferred response. I think we can see these tendencies embodied in *CNS*’s recent symposium on John Bellamy Foster’s *Marx’s Ecology*² The debates that ensue from this kind of academic sectarianism typically obscure the original research topic — say, the relation between capitalism and nature — in the struggle to establish the legitimacy of one or another perspective. In the limited space given to me, I wish to by-pass the question of whether *Marx’s Ecology* is compatible with the research program of ecological Marxism as defined by *CNS*, and focus directly upon its contribution to a new environmental history of world capitalism.

My research focuses on the historical geography and environmental history of world capitalism.³ Like ecological Marxism, this endeavour

*I would like to thank Paul Burkett, Brett Clark, John Bellamy Foster, MacKenzie K. L. Moore, and Diana Carol Moore Gildea for discussions and comments on this paper in draft. Address correspondence to: Jason W. Moore, Department of Geography, University of California, Berkeley, CA 94720; jasonwmoore@earthlink.net.

¹Giovanni Arrighi, “Capitalism and the Modern World-System: Rethinking the Non-Debates of the 1970’s,” *Review*, 21, 1, 1998, p. 113.

²“Symposium: Marx’s Ecology or Ecological Marxism?” *CNS*, 12, 2, pp. 49-84.

³Jason W. Moore, “Environmental Crises and the Metabolic Rift in World-Historical Perspective,” *Organization & Environment*, 13, 2, June, 2000; “Sugar and the Expansion of the Early Modern World-Economy: Commodity Frontiers, Ecological Transformation, and Industrialization,” *Review*, 23, 3, Summer, 2000; “Remaking Work, Remaking Space: Spaces of Production

involves the difficult task of theoretical reconstruction. I found *Marx's Ecology* compelling because it contributes mightily to such reconstruction, favoring a sophisticated holism over eclecticism. In particular, Foster offers concepts essential to the practice of world environmental history — such as the metabolic rift. *Even more importantly*, however, Foster's great, maybe original, contribution is to situate such concepts within the broader system of Marx and Engels' historical-geographical materialism. Reflecting on *Marx's Ecology*, I found three ideas especially useful for thinking world-historically about nature — the idea of coevolution; the connection between the labor theory of value and Marx's ecological conception of metabolism; and the ideas of metabolism and the metabolic rift.

Far from rendering nature passive, Foster shows that Marx and Engels' historical materialism is "coevolutionary," constituted by "the mutual determination...of organism and environment."⁴ The idea that nature has its own laws of motion that can be bent but not controlled by human society runs like a red thread through *Marx's Ecology*.⁵ In so doing, Foster makes a signal contribution to the renewal of an activist materialist outlook that is at once historical and geographical, social and ecological.

In *Marx's Ecology*, we learn that Marx and Engels shared with Darwin a view of history characterized by struggle, adaptation, transformation, and the dialectical interplay of organism and environment. Marx and Engels' great innovation was to *adapt and build upon* Darwin's conception of natural history, in which organism and environment alike are transformed, in order to comprehend human history as a coevolutionary process. From this standpoint, human evolution, comprising natural as well as social history, "had to be traced through the development of tools....This was because tools represented the development of human productive organs — the evolution of the human relation to nature — just as animal organs represented the instruments by which animals had adapted to their local environments."⁶ Labor, then, defines "the distinctive ecological niche

and Accumulation in the Reconstruction of American Capitalism, 1865-1920," *Antipode*, forthcoming.

⁴*Marx's Ecology*, p. 274.

⁵"The fact that environments could change radically, thus making an organism that was superbly adapted to its environment...no longer well adapted (actually driving it into extinction), in itself contradicted any simple notion of progression" (*ibid.*, pp. 191-192).

⁶*Ibid.*, p. 201.

occupied by humanity” and “allows us to recognize that human beings transform their environment not entirely in accordance with their choosing, but based on conditions provided by natural history,” including those natural-historical conditions produced by societies in an earlier historical epoch.⁷ Nature is not “just there.” It shapes, and is actively produced by, society. Thus the coevolutionary perspective establishes the basis for Marx and Engels’ ecological critique of capitalism, and their vision of an ecologically sustainable society of associated producers.

My second point concerns Marx’s value theory. Among left ecologists, the received wisdom is that Marx and Engels’ ecological critique is not dialectically bound to the labor theory of value. Worse, it is frequently viewed as a barrier to socio-ecological analysis — typically because critics fail to grasp Marx’s distinction between value as a historically specific social form, and transhistorical forms of wealth whose “original sources” are land and labor.⁸ *Marx’s Ecology* shows that the capital-labor dialectic is at once consequence and cause of progressively wider and deeper “rifts” in the metabolism of nature and society — above all, manifested in the historically unprecedented rupture in nutrient flows between town and country. This rupture comes about through capital’s increasing domination of the earth — “severing...any direct connection between the mass of the population and the earth”⁹ — which is the necessary precondition for capital’s exploitation of wage-labor in a system of (progressively) generalized commodity production.¹⁰ This of course is a chief moment of (so-called) primitive accumulation. A new, deeply antagonistic, relation between town and country takes shape as a consequence, whose ecological contradictions, *inter alia*, compel the geographical extension of the capital-labor relation, and along with it capitalism’s peculiar urban-rural dialectic. Every phase of capitalist development entails a new, more expansive and more intensive, exploitative relation to the land. Put simply, in Foster’s analysis the town-country division emerges as the geographical expression of capitalism’s metabolic rift, which is the principal ecological expression of the capital-labor relation. As a consequence, capitalism’s recurrent crises have called forth new and ever more ruthless means of dominating the earth — thus

⁷*Ibid.*, p. 205.

⁸Marx, *Capital* (New York: Vintage, 1977), pp. 638. These themes are amplified further in Paul Burkett’s *Marx and Nature* (New York: St. Martin’s Press, 1999).

⁹Foster, *op. cit.*, p. 170.

¹⁰*Ibid.*, pp. 74-75

we have moved from the colonization of the New World in the 16th century to the colonization of the genome in the 20th.

Finally, Foster's reconstruction of Marx's conception of metabolism and the metabolic rift stands among the most provocative approaches to the historical geography of capitalist environmental transformation. In the first place, Marx's socio-ecological rendering of metabolism brings into focus the interplay between global and local history. Under the law of value, the labor process, and through it the physical organization of the land, is radically (and progressively) simplified. One can think of plantation monocultures and row planting by specialized labor gangs as far back as the 15th century.¹¹ And so capitalist agriculture undermines the biodiversity essential to sustainability. This is accompanied by unremitting pressure to increase the productivity of the increasingly simplified land and labor. Capitalism is therefore doubly antagonistic to ecological sustainability, including the health of the worker. Far from a one-sided or mechanical formulation, the metabolic moment of modern class relations promises not just degradation but liberation. Metabolism allowed Marx "to express the human relation to nature as one that encompassed both 'nature-imposed conditions' and the capacity of human beings to affect this process."¹²

By compelling rising productivity — which sets in motion all manner of transformations in the technical and social divisions of labor¹³ — capital's domination of the earth created the conditions for a new town-country dialectic. Regional city-hinterland relations were complemented, and at times displaced, by more geographically expansive town-country relations. Sixteenth century Amsterdam, for instance, depended on Baltic grain for a quarter of its needs — one result being widespread soil exhaustion in eastern Europe's grain exporting regions in the next century.¹⁴ In brief, the localized metabolic rifts of earlier eras gave way to the globalizing metabolic rift of the capitalist epoch. And here we find one of the most profound implications of the

¹¹Moore, Summer, 2000, *op. cit.*

¹²Foster, *op. cit.*, p. 158.

¹³This includes divisions within the countryside, for instance, especially between agricultural and pastoral activities, but also including extractive industries. See John Bellamy Foster, and Fred Magdoff, "Liebig, Marx, and the Depletion of Soil Fertility: Relevance for Today's Agriculture," *Monthly Review*, 50, 3, 1998; also Moore, June, 2000, *op. cit.*

¹⁴J.H. Elliot, *Europe Divided 1559-1598* (London: Collins/Fontana, 1968), p. 48; Wallerstein, *The Modern World-System II* (New York: Academic), pp. 132-133.

theory of metabolic rift. Because capitalism's relation to the soil is unsustainable, it is compelled to perpetually seek out new frontiers, preferably in the form of geographical expansion but also through intensification and internal colonization. These waves of expansion are part and parcel of new town-country relations and new means of exploiting land and labor in successive stages of capitalist development. Thus the theory of metabolic rift provides a powerful angle of vision from which to understand, among other things, capitalism's unsustainability at the very largest and very smallest geographical scales — how the world-economy and the laboring body are mutually constitutive of, and relational to, each other over long historical time.

Marx's Ecology clarifies two further aspects of capitalism's historical geography. First, by rooting the concept of the town-country dialectic in the labor theory of value, Foster shows that town and country are not reducible to "core" and "periphery."¹⁵ These are, in fact, historically overlapping socio-spatial contradictions. Second, Foster's treatment of metabolism opens up a really fresh way of revisiting older debates over the geography of capitalism — for example, between capitalism in one country versus the world-system. I think the concept of metabolism opens up the idea that the appropriation of metabolic flows has always been central to capital accumulation, and that these flows respect no "national" boundaries. Even as they are shaped by the latter. Capitalism's spatiality is irreducibly multiscalar.

James O'Connor recently lamented the absence of Marxist environmental histories of transitions from one "mode of production to another."¹⁶ Yet, O'Connor's theorization of capitalism's ecological contradictions is strongest in the era of capitalism dating from the later 19th century. The great strength of Foster's approach is that the theory of metabolic rift helps to explain not only transitions *within* capitalism but also transitions *between* historical systems. Not only is there a metabolic rift in general, but there are a succession of rifts corresponding to — indeed, making possible — successive stages of world capitalism. Moreover, Foster's articulation of the metabolic rift informs not only the study of capitalism, but *the transition from feudalism to capitalism and the possible transition from capitalism to socialism*.¹⁷ The identification of capitalism's metabolic contradictions as dialectically bound to the production of new town-country

¹⁵As does O'Connor, *Natural Causes: Essays in Ecological Marxism* (New York: Guilford Press, 1998), p. 188.

¹⁶*Ibid.*, p. 38.

¹⁷See Moore, June, 2000, *op. cit.*

configurations and labor process transformations, opens up new vistas for social researchers to explore the “political ecology” of long-run social change at multiple scales and the complex relations between them.

Rejoinders

I.

Marx's Ecology received our attention because it raises important issues, to discuss, to criticize, and to develop. Analyzing Foster's book has been enormously worthwhile. It has helped us become more precise in our understanding of the “determination” of humans and nature in our social-political analysis. The book is worthy of praise, but it also bears criticism. It is the critique that moved our thinking forward and we can thank Foster for stimulating this undertaking.

We insist that the materials used in, and scale of, capitalist production today have changed markedly compared with the 19th century. So, therefore, have ecological relations. The fact that Marx furnished the basis for a materialist approach to ecological analysis is not doubted here. Our critique challenged Foster to engage the vast philosophical differences among the scholars pinned unjustifiably under the generic label of “green theory.” Along similar lines, previous other scholarship (e.g., Carolyn Merchant's), in addition to Foster's work, has contributed to what Burkett deems a “serious historical-intellectual analysis of the role of ecological concerns in the development of the materialist approach to human society.” This scholarship should be rather engaged than ignored.

This symposium brings forth a number of other issues for further discussion and elaboration. Costas Panayotakis reminds us of “immanent critique,” a critique from within (e.g., if Marx — or anyone — develops a method, that method should be usable to critique Marx). Joel Kovel insists that our analysis must go beyond the green; environment is only one aspect (one facet) of our understanding of the social, ecological, historical, scientific, spiritual components contributing to our understanding of how and why the world works. Alan Rudy draws our attention to the multiplicity of analytical routes that may lead to the same end. Specifically, Rudy points to Foster's use of “metabolic rift” (oversimplifying, the *appearance* of a separation of humans from nature over time) and O'Connor's “second contradiction