

Value isn't everything

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The rapid advances in Marxian ecology in the last two decades have given rise to extensive debates within the left, reflecting competing conceptions of theory and practice in an age of planetary ecological and social crisis. One key area of dispute is associated with the attempt by a growing number of radical environmental thinkers to deconstruct the labour theory of value in order to bring everything in existence within a single commodity logic, replicating in many ways the attempts of liberal environmentalists to promote the notion of “natural capital,” and to impute commodity prices to “ecosystem services”.¹ For many in Green circles Karl Marx and a long tradition of Marxian theorists are to be faulted for not directly incorporating the expenditure of physical work/energy by extra-human nature into the theory of value.

Indeed, for a number of contemporary left environmental thinkers, like Giorgos Kallis, Dinesh Wadiwel and Zehra Taşdemir Yaşın, not only human beings but also nature/animals/energy produce economic value under capitalism.² For others, adopting a more circuitous approach, like world-ecologist Jason W Moore, the distinctive role of labour in the generation of value is formally acknowledged, but the “law of value in a capitalist society” is defined as “a law of Cheap Nature”. Labour’s contribution to the production of value is viewed as epiphenomenal, largely determined by the wider appropriation of “work” or energy, in the sense of physics, carried out by the web of life as a whole.³

In this “new law of value,” as explained in Moore’s 2015 book, *Capitalism in the Web of Life*, the ultimate basis of valorisation is the capitalist appropriation of the “unpaid” work of both organic and inorganic actors, focusing in particular on the Four Cheaps (labour power, energy, food and raw materials)—or what he referred to two years later, in *A History of the World in Seven Cheap Things*, written with Raj Patel, as Seven Cheaps (adding nature, work, money, lives, and care work, while subtracting labour power and raw materials). The Four or Seven Cheaps, taken together, thus replace labour power as the real foundation of value. In this more “expansive” approach to value, the labour theory of value is relegated to a ghostlike existence, an ethereal substance, while the real basis of valorisation now is the entire web of life—pointing to an *everything theory of value*. Is not the real question, Moore pointedly asks: “The Value of Everything?”⁴

To be sure, liberal environmental criticisms of Marxian value theory go back to the beginnings of contemporary Green theory. Such criticisms rest on the systematic conflation of two distinct meanings of value: intrinsic value (or the value that we attribute to things in themselves and to our relations) and commodity value. Writing in 1973 in *Small Is Beautiful*, E F Schumacher contended that there is a tendency in modern society “to treat as valueless everything that we have not made ourselves. Even the great Dr Marx fell into this devastating error when he formulated the so-called ‘labour theory of value’.”⁵

Charges of this kind commit the fallacy of confusing Marx's critique of capitalist commodity value with intrinsic value or with wider transhistorical, cultural notions of value as worth. Crucial here is the recognition that Marx was the greatest *critic* of the capitalist value form. As Moishe Postone rightly observed in *Time, Labour, and Social Domination*, Marx was concerned primarily with "the abolition of value as the social form of wealth".⁶ Marx's *Capital* thus sought to explain value relations under capitalism as part of a historical process of transcending them. He distinguished between real wealth consisting of use values, representing what he called the "natural form" within production, and value/exchange value, ie the "value form" associated with specifically capitalist production.⁷ Socialism had as its specific goal overcoming the narrow value form so as to allow for the development of a rich world of needs, while rationally regulating the metabolism between humanity and nature.

It is this failure to perceive of Marx's analysis as *critique*—far removed in that respect from liberal political economy, whose concepts are designed to validate the existing order and are therefore presented as transhistorical ideals—that underlies the mistaken Green criticisms of Marx's value theory. Marx did not seek to defend or validate capitalist value relations, much less to universalise them by extending them to other realms of reality. Rather, in his perspective, the revolutionary goal was to abolish the system of commodity value altogether and to replace it with a new system of sustainable human development controlled by the direct producers.

For Marx, the narrow pursuit of value-based accumulation, through the "robbery" of the earth itself, at the expense of "eternal natural necessity", generated a metabolic rift in the relation between human society and the larger natural world of which it was an emergent part.⁸ Coupled with the related class contradictions of capitalism, these conditions pointed to the need for the expropriation of the expropriators. Hence, the great advantage of the Marxian ecological critique over the standard Green Theory criticisms of capitalism is precisely that it focuses on the historical-materialist bases of contemporary ecological destruction and points to the means of their transcendence. Rather than countering capitalism with a set of transhistorical values or ideals, its focus is on a critique of the existing mode of commodity production, accumulation and valorisation—a critique that extends to capitalism's relentless undermining of the environmental conditions of existence and of the Earth System itself. In Marx's theory, (commodity) value isn't everything and is distinguished from real wealth (use values).⁹

But if such traditional Green criticisms of Marxian theory are easily answered, recent developments within posthumanist thought, which today are transforming the character of Green theory, have gone much further in the attempted demolition of classical historical materialism. This has occurred through the promotion of two closely connected arguments: (1) deconstruction of social labour as the basis of value, to be replaced by what is seen as a more "inclusive" physiological or energetic theory of value; and (2) subsumption of the entire web of life in all of its aspects under the law of value of the world commodity economy. The object of such analyses is the "destabilisation of value as an 'economic' category", on which the classical Marxian critique of capitalism, with its focus on the twofold alienation of labour and nature, ultimately depends.¹⁰ In contrast, a

coherent ecological critique of capitalism requires an understanding of the dialectical contradiction between the natural form and the value form inherent in the commodity economy.

Posthumanist ecological critiques and Marx's concept of social labour

Although Marxian economics has often been faulted by Green theorists of various kinds for not developing a physiological or energetic theory of value and for tracing value exclusively to human labour, there is no extant economic theory, classical, neoclassical, Sraffian or contemporary ecological economics, that sees nature as directly productive of economic value (or value added) in the contemporary capitalist economy. With minor exceptions, all economics from the classical period to the present have perceived what nature itself provides, independent of human labour/human services, as a "free gift" to the economy—an idea that goes back to the classical theorists Adam Smith, Thomas Malthus, David Ricardo and Karl Marx, and which is carried forward in contemporary neoclassical and Marxian economics. Nature of course provides the material basis of production and affects productivity, and rents are applied to everything from the soil to fossil fuels and enter price determination in that way; yet value in the most general sense is viewed in all schools of economics as a distinctly human product, reflecting the actual working of the capitalist economy.

For many environmental theorists, who confuse intrinsic value with economic value, to exclude animal labour or energy from a conception of value is simply anthropocentric. From a classical Marxist perspective, however, the critique of capitalist commodity production captures not only the inner logic of the accumulation process, but also the limitations and contradictions of the system, marked by the distinctions between, on the one hand, the "natural form" (use value, concrete labour, real wealth) and the "value form" (exchange value, abstract labour and value).¹¹ Both the economic and ecological contradictions of capitalism have their source in the contradictions between the valorisation process and the material bases of existence inherent in capitalist commodity production. To deny the historically specific character of abstract labour as a form of social labour under capitalism is to deny the extreme character of the valorisation process under capitalism and the full extent of the expropriation of nature that it entails.

Nevertheless, we are seeing today numerous attempts to conceptualise commodity value as the product not just of human labour but of animal labour in general and, beyond that, of energy in general. Wadiwel, criticising Marx, argues that "animal labour" should be seen as directly analogous to human labour in its role in the economy, and that there is a "lack of analysis of the specific value-role of animals, not merely as commodities but as producers of value (ie labourers)." There is thus a need for an "animal labour theory of value" to complement or even to replace the labour theory of value. In this view, "the body and its metabolism" are "sources of surplus" that can be analysed by means of an examination of the animal labour time of factory animals. Hence, there is a common physiological and energetic basis to value production characterising both humans and animals.¹²

Kallis writes in "Do Bees Produce Value?" (an exchange with Erik Swyngedouw) that: "the work done by nature should be integrated within the core of [the Marxian] theory of value production under capitalism, not delegated to the margins, with concepts like productivity or rent". Like Moore, Kallis insists that value should be extended to work, in the sense of physics, where it measures the energy transferred when a force is applied to an object. "Isn't it obvious," he asks, "that the 'socially necessary labour time' for a jar of honey is not determined only by the labour of beekeepers, but also by the labour of bees?". In this view, "value is not produced only by humans but also by ecosystems and fossil fuels". It follows that, "if the bees and fossil fuels do an extraordinary amount of labour, without which...the total value produced [would be] several times smaller", then a value theory should be developed "that directly accounts for the work they do". An extension of the labour theory of value, he suggests, could include as "value" whatever "is produced from whoever does work (human or non-human, paid or unpaid)".¹³

Yaşın, drawing on Moore and on various reflections in Stephen Bunker's 1985 *Underdeveloping the Amazon*, criticises Marx's theory of metabolic rift as dualist for externalising ecology and not incorporating it directly in Marxian value theory. She therefore proposes a "value theory of nature", which would exactly do that. She justifies this by means of a startling misreading of Marx. Quoting Marx's statement that "it is a tautology to say that labour is the only source of exchange value, and accordingly of wealth in so far as this consists of exchange value," Yaşın oddly concludes from this that Marx is denying that "labour is the only source of value, as is often assumed".¹⁴ However, Marx is merely pointing to a logical tautology, nothing more. There is no question that for Marx abstract labour is the only source of commodity value in a capitalist economy, - something he reiterates over and over. In contrast, real wealth, as distinct from value, is the product of *both nature and labour*.¹⁵

Nevertheless, Yaşın offers as a solution a *value theory of nature*; one which "internalises nature" within the capitalist world-ecology, in line with Moore.¹⁶ Here she draws on Bunker's criticisms of the labour theory of value and the notion that extractive resources create value independently of labour (and rent).¹⁷ For Yaşın this provides "a conceptual lens of nature as value-forming as well".¹⁸ Nature, in this conception, is no longer, in any sense, outside capitalism, even in the sense of the externalisation of nature by capital. In this way, the so-called "epistemological rift" between capitalism and nature embodied in Marx's theory of metabolic rift is dissolved.¹⁹ According to Yaşın, "the value theory of nature" is a perspective that incorporates "ecological energy" in the conception of economic value creation. How this actually works in economic terms is not explained.²⁰

None of these ideas are new or clearly thought out. Although viewed as 21st century criticisms of Marx, these same views were in fact countered by him in his day, since they are, in Jean-Paul Sartre's words, little more than a "rejuvenation of...pre-Marxist [ideas]...a so-called 'going beyond' Marxism" that is "only a return to pre-Marxism".²¹ This can be seen in terms of Marx's (and Engels's) responses to the physiocrats and to thinkers in their own day such as Karl Rössler and Sergei Podolinsky. The French physiocrats, writing for a largely agricultural society, saw land as the unique source of wealth.²² However, while correct in their emphasis on the material basis of production, they failed to recognise the social bases of capitalist valorisation in labour, the analysis of which was to

characterise British political economy. In Marx's terms, the physiocratic doctrine was based on a "confusion of value with material substance", ie between use value (natural form) and exchange value (value form).²³ Nevertheless, the physiocratic way of thinking stands as a constant reminder of the importance of the natural form of the commodity and of the contradiction between real wealth (in terms of natural-material use values) and value.

One of Marx's earliest and most gifted Russian followers was the economist Nikolai Sieber.²⁴ In the early 1870s, Sieber began to publish a series of articles in the journal *Znanie (Knowledge)*.²⁵ In the first of these, he replied to a German review of Marx's *Capital* by Rössler, who had rhetorically asked why "the food in the stomach of a worker should be the source of surplus value, whereas the food eaten by a horse or an ox should not".²⁶ Sieber replied that Marx's *Capital* was concerned with human society and not domesticated animals and thus was directed only at the surplus value created by human beings. As Marx indicated in his notes:

The answer, which Sieber does not find, is that because in the one case the food produces human labour power (people), and in the other—not. The value of things is nothing other than the relation in which people are [socially] to each other, one which they have as the expression of expended human labour power. Mr Rössler obviously thinks: if a horse works longer than is necessary for the production of its (labour power) horse power, then it creates value just as a worker who worked 12 hours instead of 6 hours. The same could be said of any machine.²⁷

Here Marx points to the basis of value in social labour; adding that in capitalist value accounting, animals are viewed as machines and their contribution to production treated in exactly the same way.

If Sieber himself did not grasp the essential point at first, he did subsequently, perhaps as a result of correspondence with Marx. In 1877, Yu G Zhukovskii, a follower of Ricardo, criticised Marx for arguing that only human labour created surplus value. Zhukovskii argued, as explained by James D White, that "anything which bore fruit, be it a tree, livestock or the earth, all were capable of providing exchange value. For Zhukovskii one of the main sources of value was Nature".²⁸ In response to Zhukovskii, Sieber said that a good Ricardian ought to be able to grasp that human labour was the sole source of value, which reflected the division of labour and the fragmentation of society. In the following year, the classical liberal political economist Boris Chicherin presented essentially the same argument as Zhukovskii.²⁹ Here Sieber's response was unequivocal, cutting into the commodity fetishism basic to the classical liberal view:

But to people it *appears* as though things exchange themselves one for another, that things themselves have exchange value, etc and that the labour embodied in the thing given is reflected in the thing received. Here lies the whole groundlessness of the refutations of Mr Chicherin, and before him of Zhukovskii, that neither the one nor the other could understand, or wanted to understand...that Marx presents to the reader the whole doctrine of value and its forms not on his own behalf, but as the peculiar way people at a given stage of social development necessarily understand their mutual relations based on the social division of labour. In fact, every exchange value, every reflection or expression of it, etc. represents nothing but a myth, while what exists is only socially-divided labour, which by the force of the unity of human nature, seeks for itself unification and finds it in the strange and monstrous form of commodities and money.³⁰

There is no transhistorical rationality to the capitalist valorisation process, nor should this be attributed to it. Rather, it is based on a “strange and monstrous” alienation of labour, along with the alienation and externalisation of nature itself. Here it is important to understand that, in Marx’s theory, *concrete labour*, ie physiological labour—labour directly involved in the production/transformation of natural-material use values, the labour of individual human beings relying on brain, blood and muscles—is in dialectical opposition to that *abstract labour* upon which capitalist valorisation is based.³¹

Concrete labour is defined by Marx as “a condition of existence...an eternal natural necessity which mediates the metabolism between man and nature, and therefore of human life itself”.³² Abstract labour, in contrast, is a specifically capitalist social construct in which labour is homogeneous and removed from all of its concrete, physical aspects, including the metabolism of human labour itself. Value is then a kind of “reified’... labour” reflecting social equalisations of an abstractly “homogeneous human labour”.³³ It is abstract labour, in this sense, reflecting a definite social relation between human beings, Marx argued, that is the basis of value, not concrete, physiological labour. For this reason, “not an atom of matter enters into the objectivity of commodities as values”.³⁴ As Isaak Rubin noted in his celebrated *Essays on Marx’s Theory of Value*: “The expenditure of physiological energy as such is not abstract labour and does not create value”.³⁵ Value, as opposed to use value, for Marx, then, is not some universal, physical quality inherent in production throughout history. Rather it is the crystallisation of capitalist relations of production and accumulation. To refer to an animal, physiological or energy theory of value is to miss the point of the specifically reified character of value in capitalist society, the source of its increasingly distorted “creative destruction” of the world at large.

Even in Marx’s day, attempts were made to transform the labour theory of value into a general energy theory of value. However, such attempts inevitably failed to comprehend the specific, social basis of abstract labour and of value under capitalism, seeing this as a mere physical process. The notion of an energy theory of value was raised by one of Marx’s early followers, Sergei Podolinsky, often considered to be the main 19th century precursor of contemporary ecological economics.³⁶ Podolinsky attempted to integrate thermodynamics into the analysis of the economy, and raised the question of the transformation of the labour theory of value into an energetic theory of value. Marx studied Podolinsky’s work closely, taking extensive notes on the latter’s work, and commenting on it in letters to Podolinsky that have been lost. However, it was Engels who

provided a detailed assessment of Podolinsky's analysis in two letters to Marx.³⁷ Engels praised Podolinsky's argument for its integration of thermodynamics with the theory of production, but criticised Podolinsky for his crude calculations of energy transfers from agricultural labour, which excluded such factors as the energy contained in the fertiliser and the coal used in production. Engels also noted Podolinsky's failure to comprehend the enormous complexities of calculating all of the quantitative and qualitative inputs of energy entering both into the human metabolism in the process of human labour and the reproduction of labour power. There is little doubt that Marx and Engels would have strongly rejected Podolinsky's notion of human beings as Sadi Carnot's "perfect thermodynamic machine".³⁸

Engels elsewhere criticised attempts to calculate the energy going to even the simplest products in order to generate an energy theory of value, emphasising that such calculations were virtually impossible given the nature of joint production.³⁹ Beyond this, of course, proponents of an energy theory of value failed to understand, as Marx stressed, that economic value was a social relation specific to capitalist society, rooted in class and the division of labour—not a universal, physical reality. Nicholas Georgescu-Roegen, the founder of modern 20th century ecological economics sided with Engels against Podolinsky, insisting on the irrationality of an energy theory of value, which could not begin to understand the social basis of value in a capitalist economy.⁴⁰ All existing comprehensive conceptions of economic valuation, though differing among themselves, necessarily focus on the social basis of economic value. For critical ecological economists, the contradictions of the narrow capitalist value form create ecological (as well as economic) rifts that are inherent in the nature of the system. Indeed, for Georgescu-Roegen it was this that led to the ecological destructiveness of the prevailing economic order, and the creation of massive environmental problems resulting from its distorted conception of growth.⁴¹

An idealistic approach to value that looks for transhistorical bases of economic valuation, even if these are based on physical properties, fails to comprehend the integrative, dialectical levels that constitute emergent reality. The economic relations of society can no more be explained by energetics than they can be explained by "selfish genes".⁴² Both are forms of reductionism that neglect the distinctive nature of historical reality. Attempts to generate a more harmonious view of reality by incorporating all of nature into the system of economic valuation fail to perceive that the existing system of production is not a harmonious, but rather an alienated, one.

Expansive value theory and the decentering of labour value

The most ambitious attempt to deconstruct the labour theory of value from a posthumanist left-ecological standpoint is to be found in the work of Moore, particularly in his *Capitalism in the Web of Life*. Moore's analysis was to impact Kallis, Wadiwel and Yaşın in their criticisms of Marxian value theory and in their calls for a more general physiological or energy theory of value.⁴³

Moore takes as a central epistemological basis of his work the elimination of "Cartesian dualisms", which he perceives everywhere, including in the distinction between society and nature.⁴⁴ The goal is a social-monist analysis—or what he calls a "monist and

relational view”—in which everything in the web of life consists of “bundles of human and extra-human natures”.⁴⁵ The object here, is to dissolve, in the manner of Bruno Latour, all objective distinctions.⁴⁶ Accompanying this approach is a conflating of various meanings of concepts. Recognising that there are two classic meanings of value, viewed as intrinsic worth and as economic (commodity) value, Moore proposes to meld them together into a single, monist analysis. Opposed to the views of “Marxists,” who “since Marx have defended...the law of value as an economic process”, he proposes to unite within one single framework both economic value and the broad analysis of “those objects and relations that capitalist civilisation deems valuable.”⁴⁷

This conflation of Marx’s value critique with the notion of value as a broad normative, cultural pattern characteristic of civilisations in general is accomplished in Moore’s analysis via a metamorphosis of Marx’s historical notion of the law of value into a transhistorical category. Marx and all subsequent Marxian economists have viewed the law of value as standing for the laws of motion of capitalism, the system’s equilibrating characteristics based on the process of equal exchange, and the distribution of class-based income forms.⁴⁸ As the US Marxian economist Paul Baran succinctly explained, in Marx:

the law of value [can be seen] as a set of propositions describing the characteristic features of the economic and social organisation of a particular epoch of history called capitalism. This organisation is characterised by the prevalence of the principle of quid pro quo in economic (and not only economic) relations among members of society; by the production (and distribution) of goods and services as commodities; by their production and distribution on the part of the independent producers with the help of hired labour for an anonymous market with the view to making profit.⁴⁹

In contrast to Marx’s notion of the law of value, as depicted here, for Moore, “all civilisations have laws of value—broadly patterned priorities for what is valuable and what is not”.⁵⁰ Although “law of value” is often employed in Moore’s work in ways that suggest its affinity to the Marxian critique, in his world-ecology theory it metamorphoses into a suprahistorical category—one of such vagueness that it embraces not only all activity of civilisations, but also the work/energy of the entire Earth System over tens of millions of years insofar as it impacts human production.

Related to this, Moore systematically conflates the concept of work as in physics, where it is identified with the expenditure of energy, with the labour of human beings within society. In this way, he develops a universal concept of appropriated “unpaid work,” encompassing everything from a lump of coal to household labour. Both the lump of coal and a woman engaged in social reproduction in the household are said to have their work appropriated without pay.⁵¹ In fact, most work in the world, we are told, is unpaid. This, however, follows logically from a framework in which a waterfall, a living tree and the ocean tides, indeed nearly all of what we call organic and inorganic existence insofar as it bears upon production, are to be regarded as “unpaid”.⁵² It is the appropriation of such unpaid material existence that Moore sees as the main basis of the capitalist system, the source of its dynamism and which is summed up by the law of value. This is operationalised in his notion of Cheap Nature. In his original conception of the Four Cheaps, labour power is seen as just one “cheap” alongside others—in a single flat

ontology that also encompasses food, energy and raw materials. In his later conception of Seven Cheaps, with Patel, labour power disappears altogether to be subsumed under the more general category of “work”, which encompasses all energetic flows and all potential energy from whatever source, organic or inorganic—the activity of the universe.⁵³

Similarly, in the name of combatting dualism, Moore strives to conflate nature and society, subsuming the former within the latter. Any concept of nature as a larger environment of which human beings are only a part, and which therefore is partly external to them, is downgraded, as is natural science itself. In its place we are given conflated Latourian conceptions of “bundles of human and extra-human natures”, and such capacious categories as the web of life, world-ecology, *oikeios* (a classical Greek word associated with Theophrastus meaning a plant’s suitable place or location, appropriated by Moore as a way of avoiding such terms as nature and ecology) and the Capitalocene.⁵⁴ On top of this there are constant references to hyphenated couplets such as capitalism-in-nature/nature-in-capitalism.⁵⁵ In all of this, the goal is to subsume nature within capitalist society—or at the very least to reduce everything to bundles, webs and imbroglios.⁵⁶ Such views rely, in Latourian fashion, on a “flat ontology” of human and non-human actors where everything is seen as existing on a single plane and constantly intermixed and conflated—mere networks or webs without clear demarcations—as opposed to a dialectical critical realism that emphasises complexity, mediation and integrated levels, in a changing, evolving universe.⁵⁷

Just as there cannot be any opposition of society or capitalism to nature—as this is alleged to be a dualistic perspective—so there cannot be, in Moore’s general conflationist method, any ecological crisis distinguished from economic crisis.⁵⁸ The ecological problem can only be seen through the lens of the accumulation of capital, not outside of it. It is to be viewed in terms of market criteria and not in terms of the effects on ecosystems and the climate, much less the struggle for sustainable human development. Marx’s concept of the metabolic rift, addressing the contradictions between capitalism and nature, is rejected as rooted in a “dualistic” (not dialectical) understanding.

Proceeding on the basis of such questionable logical and methodological principles, Moore’s world-ecology takes as its main object “a certain destabilisation of value as an ‘economic category’.”⁵⁹ This is accomplished by seeing value as the product of work in the sense of physics, that is, as energy. In his new, expansive law of value, as he frequently explains, “value does not *work* unless most work is not valued”.⁶⁰ This, however, is a truism insofar as “most work” here refers to the work/energy of the entire Earth System and indeed the universe as a whole—the ancient solar energy embodied in fossil fuels, the work of a river, the growth of ecosystems—all of which are to be regarded as “unpaid” work or potential work. Given that work in terms of physics encompasses the entire physical realm, it is obvious that it is of greater quantitative significance than the mere exercise of labour power (however measured). Labour’s energy is dwarfed by fossil fuel energy. “Coal and oil”, Moore tells us, “are dramatic examples of this process of appropriating unpaid work,” constituting the real, hidden foundation of the law of value.⁶¹

But what is it exactly that is *unpaid* in relation to coal and oil? In economics, the “free gift” that coal and oil provide is the result of ancient sunlight, going back millions of years, which formed coal, oil and natural gas as low-entropy energy sources. It is this that gives

fossil fuels their use value. At the base of the value edifice, for Moore, is the “*accumulated unpaid work*” that occurs “in the form of fossil fuels produced through the earth’s biogeological processes” over hundreds of millions of years.⁶²

In Marxian political economy, the pricing of such resources is determined by monopoly rents. Such resources, which represent crucial use values for production, capable of enhancing labour productivity, acquire (but don’t create) value via rents based on scarcity that are deductions from the surplus value generated in the economy.⁶³ At the same time, the extraction, refining, distribution, transport and storage of these resources in the commodity economy involve value added from the employment of human labour. Yet, none of this is considered in Moore’s analysis. The entire theory of rent is excluded. Marx’s complex distinction between natural-material use value and exchange value/value is replaced with one singular law of value. The work of a barrel of oil or a waterfall or a turnip or a cow is “unpaid,” which then is presented as the hidden ecological source of value, lying behind labour power itself.

“For good reason,” Moore writes, “[Jason] Hribal asks, ‘Are animals part of the working class?’—given all the unpaid work they perform.⁶⁴ “The capital relation”, Moore goes on to tell us, “transforms the work/energy of *all* natures into...value”. Or, as we learn at another point, the law of value is all about “the transforming [of] nature’s *work* into the bourgeoisie’s *value*”.⁶⁵ In Moore’s Green arithmetic, unpaid work in the form of the earth’s biogeological processes plus unpaid subsistence labour constitute the greater part of what underlies the law of value, while the exploitation of labour power within production dwindles into insignificance in comparison.

It would be wrong, though, to attribute all of this simply to posthumanist ecology. Rather Moore’s decentering of the Marxian labour theory of value and his notion that nature’s work should be treated as the hidden source of value, grows largely out of various tendencies in liberal environmental thought. A key basis for his analysis is Richard White’s historical treatment of the Columbia river, *The Organic Machine*. White roots his history rather spaciouly around what he says are “qualities that humans and the Columbia River share: energy and work”—though, in contrast to Moore, White points out that there are “huge differences between human work and the work of nature”. Still, White, in an analogy that guides his analysis, writes: “Like us, rivers work. They absorb and emit energy, they rearrange the world”.⁶⁶

Of greater importance is Moore’s strong adherence to the notion of unpaid ecosystem services, as developed by liberal neoclassical economists, notably Robert Costanza. Costanza is famous for trying to promote an energy theory of economic value within a liberal neoclassical economic perspective, in effect, a cost of production theory ultimately rooted in solar energy. This led Paul Burkett, in his *Marxism and Ecological Economics*, to refer to the extreme “reductionism” and historical irrationality of Costanza’s approach.⁶⁷ Costanza’s attempt to promote a notion of nature as economic value resulted in the 1990s in a major split in the journal *Ecological Economics*, where he was the chief editor. The more radical theorists, associated with the great, pioneering systems ecologist Howard Odum, argued, in effect, for an approach that distinguished between use value/real wealth and exchange value/value, ie between the natural form and the value form, along lines

similar to Marx (utilising Odum's notion of *emergy* or embodied energy as a natural-material or use value category counterposed to economic value). Odum later sought to synthesise his systems ecology with Marxian theory in this regard, and developed a theory of unequal ecological exchange on this basis.⁶⁸

Odum's radical ecological approach ran directly against the liberal tendencies of Costanza (Odum's former student). This led to a growing conflict between the radical ecological economists and natural scientists associated with Odum, on the one hand, and the liberal, neoclassical-oriented theorists around Costanza, on the other. Alf Hornborg, a cultural anthropologist with connections to Marxian theory, played a key polemical role as a critic of Odum's approach within the journal, attacking both Odum and Marx and siding with Costanza.⁶⁹ In the end, Odum and his radical associates on the editorial board were virtually banned from the journal.⁷⁰

Moore, who was a younger colleague of Hornborg at Lund University in Sweden in 2008-9, was subsequently to incorporate Costanza-like ecosystems-services and energy-value approaches into his analysis.⁷¹ Moore's work thus took the form of a Marxified version of the mainstream ecosystem services argument, associated with Costanza's estimates of the tens of trillions of dollars that ecosystems provide unpaid each year to the world economy, calculated on the basis of the imputation of commodity values to natural processes.⁷² Rather than addressing the ecological contradictions of the capitalist system, and the inherent contradiction between natural-material use values and exchange value, as did radical and Marxian ecological economists, Costanza and his team of liberal ecological economists wrote of the need to embrace the notion of natural capital. Solutions to environmental contradictions were seen as requiring the internalisation of nature within the commodity economy. The ecological problem was thus reduced to the presumption that everything in nature, insofar as it could be seen as aiding the economy (directly or indirectly), had value and needed to be given a price—a view underpinned by the concept of natural capital.⁷³

Moore's main concrete innovation in *Capitalism and the Web of Life* and other works was to seek to turn Costanza's perspective on its head, arguing that capitalism throughout its history is rooted in the fact that extra-human work (as well as much human work) is appropriated without pay. Nevertheless, from a classical-Marxian perspective, the severe weaknesses of an analysis that largely rejects the labour theory of value—along with the distinctions between use value and exchange value and the rent theory—while idealistically seeking to expand the notion of value production to all work/energy in nature, are all too apparent.

The natural form and the value form

The substance of value in a capitalist economy is, in Marx's conception, abstract labour. The "value form" (or exchange value) is thus to be distinguished from the "natural form" (or use value). The *natural form* stands for the "tangible, sensible form of existence", involving natural-material and technical properties and constituting real wealth. The *value form* of the commodity is its "social form", which points to the general concept of *value* as a crystallisation of abstract labour.⁷⁴ It is the opposition between the natural form and the value form, inherent to capitalist production, that generates the economic and ecological

contradictions associated with capitalist development. By the very fact that capitalism is a system of accumulation, the value form comes to dominate completely over the natural form in commodity production. "As useful activity directed to the appropriation of natural factors, in one form or another", Marx writes, "labour is a natural condition of human existence, a condition of material interchange [metabolism] between man and nature". However, every commodity obtains its exchange value, its value form, precisely "through the alienation of its use-value," often leading to the destruction of the metabolism between human beings and nature.⁷⁵ Out of this arises Marx's general conception of the metabolic rift, or the "irreparable rift in the interdependent process of social metabolism, a metabolism prescribed by the natural laws of life itself".⁷⁶

The logic of capitalism, associated with the law of value, is a formally rational one, which is at the same time substantively irrational, with the irrational aspects gradually taking on ever greater importance. Indeed, capitalism is based at the outset (via "so-called primitive accumulation") on the externalisation of natural properties. Such organic properties, though incorporated in production as use values representing the natural form of the commodity, are alienated in their value form and excluded from value based on abstract human labour.⁷⁷ Natural properties, including human-natural properties, ie human corporeal existence, are thus approached one-sidedly only insofar as they facilitate the production of value. A further level of externalisation arises through the imposition of many of the costs of production on nature (including human corporeal existence which is outside the circuit of value) as *externalities*, with the negative effects falling not only on the environment but also on human beings. The result is that capitalism promotes the creative destruction of life itself, extending eventually to the entire Earth System.

Ahistorical, idealistic attempts to envision the internalisation and integration of social and environmental costs within the market system, or to see nature as the true source of value, only play down the social (including class and other forms of oppression) and ecological contradictions of the capitalist system. The goal of that system is the accumulation of capital. To put a price on a forest, so that its work/energy is no longer "unpaid", ie to commodify it—to turn it into so many millions of board feet of standing timber—is no more likely to save the forest than the lack of a price. This is because the real issue is not the so-called "tragedy of the commons" but the system of capital accumulation itself. Songbirds are dying off because their habitats are being destroyed by the historical expansion of the system—not simply because they are considered "valueless" from the standpoint of the market. Whales are killed directly to be sold directly as a market commodity, while they are also being annihilated as a side effect of the expansion of the system through the destruction of their ecosystems. All of this suggests that sustainable human development requires not the incorporation of nature into the system of value, but the abolition of commodity value itself.

Any form of analysis that seeks to eliminate the deep-seated dialectical contradictions between the natural form and the value form, between the capitalist economy and the larger socioecological metabolism, in order to imagine a more harmonious integration, is inherently caught in a narrow, monistic view—one that fails to comprehend the complex, interdependent dialectics of nature and humanity in an attempt to reduce all the levels of existence to a "singular metabolism".⁷⁸ Such a false harmony can only be, in Marx's

words, “the *flat*, stilted product of a thin, drawn, antithetical reflection” that seeks to redraw “boundaries” rather than to eliminate the system that—through its externalisation and alienation—has generated these rifts in material existence.⁷⁹ What is called for today is not a radical *revaluation* of nature, but a revolutionary ecological and social transformation, generating a new reality: a new realm of *freedom as necessity*, directed at the rational regulation by the associated producers of the metabolism of nature and society.⁸⁰ Here is Rhodes, jump here! ⁸¹

Paul Burkett teaches economics at Indiana State University, Terre Haute. He is the author of Marx and Nature (1999), Marxism and Ecological Economics (2006), and co-author, with John Bellamy Foster, of Marx and the Earth (2016).

John Bellamy Foster is editor of Monthly Review and a professor of sociology at the University of Oregon. He is the author of The Vulnerable Planet (1994), Ecology Against Capitalism (2002), The Ecological Revolution (2009), The Ecological Rift (with Brett Clark and Richard York, 2010), What Every Environmentalist Needs to Know About Capitalism (with Fred Magdoff, 2010) and Marx and the Earth (with Paul Burkett, 2016).

Notes

¹ Moore, 2014a, pp245, 261 and 280. On natural capital see Hawken, Lovins and Lovins, 1999. For a critique see Foster, 2002, pp26-43. On ecosystem services see Moore, 2015, p64; 2014a, p261; Costanza and others, 1997; Costanza and others, 2014.

² Yaşın, 2017; Kallis and Swyngedouw, 2018; and Wadiwell, 2018a and 2018b. For an older argument on this line, see Bunker, 1985.

³ Moore, 2014a, pp250 and 280. For a criticism of Moore’s views in this respect see Parker, 2017.

⁴ Moore, 2015, p70; Moore, 2014a, pp245 and 267; Moore, 2017a, pp327-28; Patel and Moore, 2017.

⁵ Schumacher, 1973, p15.

⁶ Postone, 1993, p27.

⁷ Marx, 1978, p134.

⁸ Marx, 1976, p133.

⁹ Marx, 1938, p3.

¹⁰ Moore, 2014b, p29.

¹¹ Marx, 1978, p134; Marx, 1970, pp27-37; Rubin, 1972, pp131-158.

¹² Wadiwel, 2018a and 2018b.

- 13 Kallis in Kallis and Swyngedouw, 2018, pp36, 39, 44, 47 and 49. Kallis was influenced by Moore in developing his argument that fossil fuels and energy in general create value. See Kallis, 2017.
- 14 Yaşın, 2017, pp378 and 394; Marx, 1970, p36.
- 15 Marx, 1970, pp35-36.
- 16 Yaşın, 2017, pp378 and 389.
- 17 Yaşın, 2017, pp389-392; Bunker, 1985, pp20-47.
- 18 Yaşın, 2017, pp387 and 392.
- 19 Yaşın, 2017, p378.
- 20 Yaşın, 2017, pp397-398.
- 21 Sartre, 1963, p7.
- 22 Burkett, 2006, pp23-37.
- 23 Marx, 1963a, p60.
- 24 The following discussion of Sieber draws on Foster and Burkett, 2016, pp107-110.
- 25 On Sieber's Marxian economics and his critique of Ricardian theory see Sieber, 2001.
- 26 Karl Rössler quoted in White, 2001, pp5-6.
- 27 Marx, 1927, p61, quoted in White, 2001, p6.
- 28 White, 2001, pp6-7.
- 29 Chicherin, 1998, p325.
- 30 Sieber as quoted in White, 2001, p8.
- 31 Rubin, 1972, pp131-58. The very possibility of abstract labour requires of course that physiological labour first be given a social expression of equalisation or quid pro quo. Abstract labour and value itself, however, are divorced from any physiological elements. As Rosdolsky (1977, p513), says: "Physiological labour is not yet economic labour".
- 32 Marx, 1976, p133.
- 33 Rubin, 1972, p153; Marx quoted on "homogenous human labour" in Rubin, 1972, p148 (quote from original German edition of *Capital*, volume 1).
- 34 Marx, 1976, p138.
- 35 Rubin, 1972, pp136-137.
- 36 For a full discussion of the Marx-Podolinsky relation, on which the treatment here is based, see Foster and Burkett, 2016, pp89-136.

37 Marx and Engels, 1975, volume 46, pp410-411.

38 Podolinsky, 2016, pp281-82; Foster and Burkett, 2016, pp110-117.

39 Marx and Engels, 1975, volume 25, pp586-587.

40 Georgescu-Roegen, 1986, pp8-9; 1971, p277; Martinez-Alier, 1997, p231; Foster and Burkett, 2016, pp135-136.

41 Georgescu-Roegen, 1976, pp33-35.

42 Levins and Lewontin, 1985, p288; Gould, 1997, p91; Bhaskar, 1993, pp49-56.

43 Kallis, 2017; Wadiwel, 2018a; Wadiwell 2018b, p544; Yaşın, 2017.

44 Moore, 2017b, p606; 2015, pp1-7, 19-20 and 37; Yaşın, 2017, p389.

45 Moore, 2015, pp80 and 85-86. The notion of “bundled” human and extra-human nature on which Moore relies is a Latourian formulation. See Latour, 2005, pp17, 134 and 139.

46 On the Latourian character of Moore’s thought see Malm, 2018, pp177-196; Foster, 2016.

47 Moore, 2014a, p280.

48 Marx, 1981, p1020; Sweezy, 1970, pp52-53.

49 Baran wrote in Baran and Sweezy, 2017, p253.

50 Moore, 2017b, p610; 2015, pp51-58.

51 Although neither natural processes nor household/subsistence labour (mainly carried out by women) contribute directly to the creation of value in capitalist accounting, the two should obviously not be confused with each other. See Waring, 1999 for a powerful critique that avoids such conflation. On Marx, social reproduction and the expropriation of women’s household labour see Foster and Clark, 2018.

52 Moore, 2015, pp54 and 71.

53 Patel and Moore, 2017, pp24-25.

54 Moore, 2015, pp35-36 and 85.

55 Malm, 2018, p179.

56 For the wider tradition in left theory in this respect see Foster and Clark, 2016; Malm, 2018, pp23-40.

57 Harman, 2014, pp14, 18 and 81.

58 Moore, 2015, pp2 and 40-41.

59 Moore, 2014b, p29.

60 Moore, 2015, p54.

61 Moore, 2015, p71.

62 Moore, 2014a, p261.

63 For a discussion of Marxian rent theory and ecology see Burkett, 2014, pp94-103.

64 Moore, 2014a, p262; Hribal, 2003.

65 Moore, 2016, p89; Moore, 2015, p71.

66 White, 1995, pp3, 6 and 108; Moore, 2015, pp14-15.

67 Farber, Costanza, and Wilson, 2002, pp382-83; Costanza, 1980; Burkett, 2006, pp18-19, 38 and 93.

68 See Foster and Holleman, 2014, pp223-227.

69 Hornborg, 1998, pp130-132; 2001, pp40-43; 2011, pp17 and 104.

70 Odum, 2001, pp37-39.

71 Hornborg has recently criticised Moore both for his posthumanism and for his residual Marxism. See Hornborg, 2017.

72 On Moore's frequent references to Costanza see, for example, Moore, 2014a, pp261; 2015, p64; 2016, p8—including references to Costanza and others, 1997; Costanza and others, 2007, Costanza and others, 2014.

73 Hawken, Lovins and Lovins, 1999.

74 Marx, 1978, p134; Marx, 1975, p212.

75 Marx, 1970, pp36 and 45-46.

76 Marx, 1981, p949.

77 Marx, 1976, p871.

78 Moore, 2015, p86.

79 Marx, 1973, p887.

80 Marx, 1981, p959; Marx and Engels, 1975, volume 25, pp105-106.

81 Hegel, 1952, pp11 and 303; Marx, 1963b, pp19 and 142.

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